HEALTH LITERACY OF IRAQI IMMIGRANT ADULTS

PILOT STUDY

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Jilan Hatamleh

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Dissertation

Approved:	Accepted:
_____	_____
Advisor Dr. Marlene Huff	Department Chair Dr. Marlene Huff
_____	_____
Committee Member Dr. Mary Agnes Kendra	Dean of the College Dr. David Gordon
_____	_____
Committee Member Dr. Ratchneewan Ross	Dean of the Graduate School Dr. Chand Midha
_____	_____
Committee Member Dr. Sandra Hudak	Date
_____	
Committee Member Dr. Heather Walter	

ABSTRACT

Individuals with low health literacy experience several challenges such as communicating with the health care team, using available health resources and understanding health information. Specifically, immigrants with low health literacy may lack accessible written resources in their primary language, and familiarity with the health care system in the United States (U.S.). The purpose of this pilot study was to examine the effect of a 3- hour educational program on the health literacy of Iraqi immigrants in the U.S. The quantitative study was implemented using a Pretest-Posttest design. Iraqi immigrants (n = 30) who were 18 years or older, used English as a second language and lived in the U.S. for at least five months, participated in the study. Health literacy (functional, communicative and critical) was measured before and after an educational program by using the "Test of All Aspects of Health Literacy Scale (AAHLS)". Following the posttest, interested participants (n = 9) responded to verbal questions about the program. Based on the results of this pilot study, the mean of AAHLS total score for the pretest was 13.3, and the mean of total score for the posttest was 16.03. Although the results indicated a significant improvement of PostTotal health literacy scores (M = 16.3, SD = 3.04) over PreTotal health literacy score (M = 13.13, SD = 3.13), t (29) = 4.917, p < .001, the functional literacy subscale did not show similar improvement. The importance of handouts written in Arabic was supported by verbal responses in the post-intervention discussion.

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TABLE OF CONTENTS

Page

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

INTRODUCTION

Background

Individuals with low health literacy often have greater difficulty in navigating the health care system specifically among vulnerable population such as immigrants. As the population of the U.S. becomes more diverse, the number of individuals from different cultures also increases. During the United States military's involvement in 2003 events in Iraq, a large number of Iraqi immigrants moved to the U.S. and other countries in North America and Europe. "Arab-Muslim population is one of the fastest growing ethnic-minority populations in the USA. However, Arab-Muslim patients – and particularly the growing Iraqi refugee population – face huge challenges in seeking and receiving medical care" (Inhorn & Serour, 2011, p. 935).

Iraqi refugees are the largest group resettled in the U.S. and they are almost 21% of the total U.S. refugees (Ramos, Orozovich, & Moser, 2011). Refugees fled from the difficult situation in Iraq without having advance preparation for leading their lives in a Western country. Immigrants in need of services in health care faced many challenging barriers such as difficulty in scheduling appointments, finding transportation services, securing professional interpreters, and communicating with health care professionals presumably because of unfamiliarity of the health care system in the U.S. and low (uncertain level) health literacy (Eckstein, 2011).

There are several negative aspects of an uncertain level of health literacy (ULHL) such as the potential for: 1) skipped appointments, 2) poor management of chronic diseases, 3) increased hospitalization rate, 4) frequent emergency room visits, 5) poor health status, 6) high health care costs due to increased hospitalization, and 7) negative psychological effects (shame, low self-confidence) due to inadequate health information (Egbert & Nanna, 2009). In addition to not knowing the health care system, Iraqi immigrant adults also face the challenge of possessing limited language skills in a new country. Previous research studies have acknowledged the need for higher awareness of the negative consequences of ULHL among diverse populations (Egbert & Nanna, 2009; Nutbeam, 2008). Unfortunately, research on health literacy of Iraqi immigrants is still insufficient (Eckstein, 2011; Inhorn & Serour, 2011).

Problem Statement

Health literacy was defined as "the degree to which individuals have the capacity to obtain, understand, and process basic health information and services needed to make appropriate health decisions" (Parker & Ratzan, 2010, p. 20). It includes cognitive/critical and communicative skills that can motivate individuals to access, understand, and use available health information (World Health Organization, 2009). Consequently, health literacy is contingent on two major interconnected skills: functional and complex (communicative and critical). The functional skill is the basic ability of reading and writing. The complex skill of communication is the ability to interact with the health educational care system to obtain the required information. The "critical" portion of the complex skill is the ability to critically analyze, manage, and use health information.

Individuals with ULHL should become competent in these two skills (functional and complex) to be able to make appropriate health decisions (Chinn & McCarthy, 2013).

Health literacy, however, has been addressed more narrowly as the ability to read and write (Chinn & McCarthy, 2013; Egbert & Nanna, 2009; Rudd, 2015). Health literacy is more than the deficiency in reading instructions or writing. Individuals according to the definition of health literacy should be able to obtain available health information. They should be taught how to communicate, use, and process basic health information. Individuals who are unable to understand, or who partially understand basic health information, are more likely to misinterpret health information, use the emergency room for primary care, and struggle with management of chronic diseases (Egbert & Nanna, 2009).

Taking into account the broader definition, health literacy programs should be designed to improve both functional and complex literacy which can affect individuals' access to health information and their ability to use the information in an effective manner (Egbert & Nanna, 2009). Health information should also be presented in a preferred language using simple and plain medical terminology. As individuals with ULHL require critical and communicative skills to process the acquired information, it is important to master these skills to improve confidence in accessing available information.

Patients with low health literacy report poor hospital communication and difficulty in understanding health related information (Jencks, Williams, & Coleman, 2009). Effective communication with a health care team can assist patients in understanding their own care and with better understanding of self-management; a number of hospitalizations can decrease. Immigrants have been identified as a vulnerable

population due to numerous factors, such as economic background, immigrant's status, limited English proficiency, and local policies on access to health care (Derose, Escarce, & Lurie, 2007). Research about addressing needs of Arab immigrants is still limited and there is a need for: 1) more research on Arab immigrants' health in the U.S.; 2) health services that are appropriate to new Arab immigrants in the U.S.; 3) more health education materials in the Arabic language; 4) health-care professionals to attend cultural competency training programs; and 5) more culturally appropriate programs to address mental health issues, such as post-traumatic stress syndrome among this population (Inhorn & Serour, 2011). Immigrants' low health literacy is accompanied with lack of accessibility of written resources in their primary language and with difficulty in using and navigating health services. "Immigrants in particular are at risk for misunderstanding instructions from their health care providers. Instituting multiple teaching formats along with routine checks for understanding could greatly improve outcomes and treatment compliance" (Kimbrough, 2007, p. 103).

Purpose

The purpose of this study was to examine the effect of a 3-hour educational program on health literacy of Iraqi immigrants in the U.S. Participants were enrolled in the health care educational program to enhance their health literacy skills. The content of the program focused on improving both functional and complex literacy skills using several strategies such as picture story, readable information and audio-visual materials. Health literacy of participants was measured before the educational health care program and compared with health literacy following the program. This method was used to examine the effect of this program on health literacy of Iraqi immigrants by improving

both functional and complex health literacy skills. A post-intervention discussion was conducted to collect verbal responses of participants about the health information presented and the methods used in the program.

Research Question

The research question for this study was: Is there a difference in the health literacy of Iraqi immigrants following a 3-hour educational program focusing on health care literacy?

Significance to Nursing

Nurses play an integral role in influencing the quality of healthcare. Gynn (2012) explained that nurses are important players in improving health literacy in the U.S. by reducing the stigma of shame associated with ULHL. Empowerment of individuals is the final outcome of health literacy education. Health literacy improvement programs should consider cultural differences that affect Iraqi immigrants' understanding of the health care system. A better understanding of methods to improve health literacy is important to have better patient outcomes.

According to Kim (2010), in the typology of theoretical domains, there are four domains: client, client-nurse relationship, nursing practice, and environment. The typology of the four dimensions improves our understanding of the context and concept of each domain by rephrasing our understanding of what we need to know and its significance to the profession of nursing. Humans are the main focus in the client domain. In the study, the immigrants are the central and the main focus.

Philosophy of care for patients as individuals is explained in the second domain of nurse-patient relationship (Kim, 2010). Individuals with ULHL face tremendous difficulties in following instructions and receiving educational information. Therefore, immigrants with improved health literacy will potentially use health resources in a better way and will be more likely to follow nursing instructions.

In the practice domain, there is a difference between "what one knows" and "what one does" (Kim, 2010). Nurses employ their knowledge and their experience into practice. Knowledge about how to assess and improve health literacy has the potential to improve the quality of nursing care. The outcome of the program can validate the importance of introducing interventions to assist with understanding the health care system and how to manage self-care.

In summary, there is limited research about health literacy interventions for the Iraqi population. Previous research explained the difficulties encountered by Iraqi immigrants in navigating the U. S. health care system. Health literacy has been discussed as a narrow vision of reading and writing skills. The definition of health literacy emphasized on the importance of complex skills of communicating and critically managing health information. The purpose of this study was to examine the effectiveness of a 3-hour educational program on health literacy of Iraqi immigrants in the U.S.

CHAPTER II

LITERATURE REVIEW

Introduction

The use of educational programs and other interventions to increase literacy has been supported in the literature to improve health care outcomes. Individuals with ULHL often face great difficulty in accessing and understanding information to make informed decisions about health care. Within this context, individuals, whose primary language is not English, experience added difficulty in navigating the health care system due to language barriers (Kimbrough, 2007). Consequently, it is imperative that nurses develop necessary approaches/skills to help patients for whom English is a second language (ESL) to make good health decisions.

The conceptual framework (Figure1) for this study was developed using the work of several researchers (Chinn & McCarthy; 2013, Egbert & Nanna, 2009; Nutbeam, 2008; Parker & Ratzan, 2010; Speros, 2005). Health literacy was defined as the ability to obtain, understand, communicate and process basic health information to reach health decision. The conceptual framework for increasing health care literacy was based on basic functional literacy and complex skills (including communicative and critical). Functional literacy skills are influenced by the availability of linguistically appropriate and readable health information in a patient's language. Complex skills are influenced by the individual's ability to process the information about the health care system. The

ability to navigate this system is influenced by a previous complex skill which includes reasoning and management of health information (Sykes, Wills, Rowlands, & Popple, 2013). In this chapter, a review of studies related to health literacy will support the need for culturally relevant information to be available for Iraqi immigrants; health literacy challenges and health literacy in nursing will be discussed.

Health Literacy

Health literacy was defined as the ability to obtain, understand, and process basic health information that is used to make appropriate health decisions (Parker & Ratzan, 2010). The actualization of this concept includes four functions: 1) accessing health information, 2) understanding the information, 3) communicating with health care professionals, and 4) being able to process the information to reach health decisions.

Accessibility to health information represents the initial part in the health literacy definition. It could be achieved by providing readable material in one's primary language, using simple words, and avoiding jargon. However, availability of information is not an assurance that individuals can understand it or that they will use it in making health decisions. In addition to accessibility, individuals should have the ability to understand and process this information (Egbert & Nanna, 2009).

Health literacy has two aspects: functional skills and complex skills (communicative and critical). Obtaining health information is considered a functional skill, meaning that basic reading skills are needed to understand health information. However, this functional skill is only one aspect in terms of an individual's ability to read, as by itself it is not enough to reach a good health decisions. Fully utilizing obtained information requires complex skills to interact with health care providers. In addition, and

within the broader context, addressing ULHL is a shared responsibility between individuals and health care providers. Hence, the problem of health literacy is not due to a deficiency of functional literacy of individuals only. It is a shared responsibility between those who seek health care and those who provide health care. One aspect of care from the providers includes identification of individuals with ULHL. This assessment provides a starting point for educators. Thus, it is within this context that both the individual and the health care provider share common responsibility for achieving a successful outcome to a health care need (Martensson & Gunnel, 2012).

The ability to process and manage health information can help individuals with ULHL to reach an informed health care decision. The health care decision, which is the optimal goal of health literacy, is more complicated and requires critical expertise such as skills in analysis, problem solving and decision making. These critical skills are important for understanding acquired health information because they increase the ability of individuals to act for the wellbeing of their personal health. Literacy that is necessary to make informed health care decisions (critical health literacy), is the higher order process to evaluate available health information to reach health care decisions (Sykes et al., 2013).

Critical health literacy is also interrelated with health status, public health, and health promotion. Informed health decisions can enhance an individual's health status by improving chronic disease management by properly using health services. Additionally, critical health literacy and confidence can add to the ability of individuals to navigate the health care systems and manage educational information. Individuals should have the critical skills to understand health information, which could be achieved by improving

health knowledge and familiarity with health terminology. Health literate individuals can be further empowered through the use of critical literacy such as managing health information, sharing health decisions, and applying it to one's own situation (Sykes et al., 2013).

Health literacy is associated to health equitability. In this sense, health literate individuals often are capable of negotiating and communicating with health care professionals to reach health decisions. An individual with ULHL is considered a risk to the effectiveness and cost of clinical care due to non-compliance with medication, poor self-management of chronic disease, and frequent hospitalizations (Nutbeam, 2008). The ability of health care professionals to assess and distinguish the effects of ULHL can help reduce the negative consequences for individuals. Health literacy (asset/outcome) is important for an individual's empowerment and confidence in making decisions regarding their health. Individuals with ULHL should be motivated to access health resources and should be confident enough to use the obtained information successfully. For example, individuals with ULHL should be motivated to use information gained to better control their health and to put this new knowledge into action. Therefore, individuals who lack the availability of information are more likely to be less confident in making future health decisions (Nutbeam, 2008).

Individuals with ULHL may feel embarrassed due to inadequate language skills or difficult medical terminology (Martensson & Gunnel, 2012; Parker & Ratzan, 2010). Therefore, the ability to access, understand, communicate, and process health information should be improved. Health professionals can create the proper environment for improving an uncertain level of health literacy by moving beyond merely providing

health information. Individuals need to be motivated to use the health education they have acquired toward making informed health decisions.

Accordingly, nurses can create a shame-free environment where individuals with ULHL can ask questions without feeling ashamed or embarrassed. This environment could be created using the following strategies: 1) use plain language, 2) speak slowly, 3) avoid jargon, and 4) use audio-visual aids. Nurses can help increase a client's knowledge base by using non-medical type language and speaking slowly. This practice can create a trusting and shame-free therapeutic environment where individuals are more comfortable because difficult terms or complicated information do not pose a challenge to them. Thus, as patient advocates, nurses should implement the strategies mentioned above to provide the best opportunities to improve health literacy of patients (Speros, 2005).

Individuals need to have high confidence in their ability to use the information they gain since individuals with ULHL often do not ask questions about their health to avoid embarrassment (Egbert & Nanna, 2009). Functional literacy is based on the ability to obtain and understand health information. This ability could be enhanced by providing readable health information in the individuals' primary languages. Critical literacy adds to the individual's ability to communicate and process the obtained information with health care professionals. In order to improve health literacy, both functional and complex critical skills should be addressed.

Health in Iraq

There are 22 Arab countries that share the same cultural and linguistic inheritance. The cultural traditions are strongly influenced by Islamic regulations. Arab immigration to the U.S. occurred in three waves: after World War I, World War II, and

the Immigration Act of 1965 (El-Sayed & Galea, 2009). Describing the post-2003 situation in Iraq, the comment was written, that "Human resource development fails to link needs, strategic plans, and training programs together. As the public sector loses its monopoly on the employment of doctors, major changes loom in the health system, for which there are as yet no policies" (Al Hilfi, Lafta, & Burnham, 2013, p. 946). The health care system and many health facilities were destroyed. Smoking, chronic diseases, and obesity are not fully addressed by the current health system in Iraq. More challenges emerged due to communicable diseases such as tuberculosis and varicella infection. Mental and psychological health problems such as depression, anxiety, and post-traumatic stress syndrome also escalated (Al Hilfi et al., 2013). Due to the shortage in physicians and staff, waiting time-increased, which affected the quality of health care provided. So, Iraqi immigrants came to the U.S. with several health issues and concerns such as chronic diseases management due to difficult situation in their country.

Health Literacy Among Arab, Muslim, and Iraqi Immigrants

Iraqi immigrants encounter several obstacles and difficulties in the health care system primarily due to language barriers. Arab immigrants in the U.S. need to be provided with health materials that are culturally appropriate. "The lack of culturally competent service within the complex American health care system presents a huge challenge for Arab immigrants in the U.S." (Inhorn & Serour, 2011, p. 940). This population experienced the instability of health services in Iraqi and immigrated to a Western country with different health care system. Arab immigrants and Muslims in the U.S., due to their English-language deficiency, reported fair to poor health status compared with Arabs born in the U.S. who 'enjoy' a better health status. However,

language inadequacy is not the only obstacle for individuals who do not speak the dominant language of the place where they live.

Different terms and titles have been used in other countries to define health literacy such as health communication, health promotion, health beliefs, and communication for healthy living. In order to obtain information about the knowledge base of mental health, the term "mental health beliefs" was used in a door-to-door quasi large scale survey study in Pakistan about mental health literacy. In the study, the term "mental health beliefs" was defined as "knowledge and beliefs about mental disorders and their management" (Suhail, 2005, p. 167). Participants from different locations in three cities and villages in Pakistan (n = 1,750) were questioned about selected health issues (Suhail, 2005). The term "mental health" was not used for the entire study to avoid any problems in the cooperation of participants in the survey.

A Mental Health Literacy Questionnaire (MHLQ) was designed to assess participants' awareness and beliefs regarding mental health using items from Jorm et al. (1997). The questionnaire was formulated and rephrased to coincide with local linguistic expressions in the area. Low mental health literacy was only defined as knowledge deficit. The study findings supported the need for mental health literacy programs to improve mental health awareness, especially in less educated rural areas due to a mistaken belief and stigma of "mentally sick" and sometimes referred to as 'insanity'. In terms of Pakistan's culture, there is a belief in using magical healers, faith healers, and religious leaders as primary care providers for mental illnesses (Suhail, 2005).

Health Literacy Among Other Populations

The study of health literacy may be useful in explaining health literacy interventions such as easy-to-read health information, teach-back method and motivation. "Encouraging the universal use of teach-back techniques, active listening and questioning, visual teaching aids, clearly written instructions, or other methods to ensure patient understanding may improve the general health literacy of the population, and will certainly aid in making sure those most likely to have difficulty understanding will be better served"(Kimbrough, 2007, p. 103).

The effect of literacy sensitive interventions of inhaler techniques was tested for patients with Chronic Obstructive Pulmonary Disease (COPD) (Kiser et al., 2012). Caucasian patients (n = 99) were randomly enrolled into either face-to-face educational intervention or 'usual' clinical care. The educational intervention consisted of COPD educational sessions, readable handouts, and inhaler techniques. Participants were asked to complete an inhaler technique checklist that was developed by the researchers. The checklist consisted of eight items describing the proper way to use most popular inhalers. The authors used a short Test of Functional Health Literacy (S-TOFHLA) to measure health literacy. Participants in intervention group had improvement in metered dose inhaler techniques.

Literacy sensitive interventions such as a readable handouts and repeated demonstration can improve inhaler technique since patients with ULHL struggle with lower medication familiarity and inaccurate inhaler techniques. Improved health literacy is essential in self-management skills such as inhaler techniques (Kiser et al., 2012). Easy-to-read information can also help ULHL in the navigation of the health care system.

Several teaching methods were used by DeWalt et al. (2011) during the educational intervention such as the "teach-back" method or repeated demonstration of inhaler techniques and readable handouts. The teach-back method, also called the "show-me" method, is the way to confirm and check the level of understanding of patients after being provided with instructions or information. This method is recommended among patients with limited health literacy (DeWalt et al., 2011). The patients in the teach-back method were asked to repeat and rephrase information given in their own words.

An educational program was conducted for heart failure patients with low health literacy to decrease the risk of hospitalization or death (DeWalt et al., 2006). A booklet written below a sixth grade level with management scenarios was used to teach African-Americans patients signs of heart failure such as variation in weight, education on self-care, and diuretic dose. Patients were also encouraged to call physicians in case of weight fluctuation to adjust their diuretic dose. Health literacy was measured for both control and experimental groups using Short Test of Functional Health Literacy in Adults (S-TOFHLA). The program was useful for patients with all levels of health literacy (24 individuals with inadequate health literacy and 75 with marginal/adequate health literacy in each group). Improvement was found in daily weight monitoring (79%) compared with baseline (29%) in the experimental group. There were decreased numbers of hospitalizations and deaths reported in the experimental group (68 hospitalizations, 3 deaths) compared with the control group (107 hospitalizations, 4 deaths).

In summary, previous studies related to health literacy programs were conducted with different populations including African Americans and Caucasians. Health literacy was measured using S-TOFHLA (DeWalt et al., 2006; Kiser et al., 2012). Programs that

are designed for individuals with ULHL using readable educational booklets can minimize the risk of hospitalization (DeWalt et al., 2006). Several teaching methods were also used in educational programs such as the teach-back method (Kiser et al., 2006).

Health Literacy in Nursing

There are 59.5 million people who speak a language other than English at home in the U.S. The health literacy challenge involves greater problems than just reading and writing limitations. Patients with low health literacy need to understand health information and to use it in order to reach appropriate health decisions. They encounter several problems in navigating the health care system such as understanding the instructions and finding proper resources/services, completing medical forms, and understanding directions on medications and managing chronic diseases (U.S. Department of Health and Human Services, 2013). In an attempt to improve health literacy, health professionals should consider the diversity of background and previous experience of patients.

Discussing health problems in order to reach health decisions is a challenging process for both patients and health care professionals. Health information provided to patients should be trustworthy and useful. Such reliable information can guide individuals to reach proper health decisions. Patients may feel ashamed or embarrassed to ask questions, and may leave hospitals and clinics with unanswered questions if they cannot express their needs. This behavior can further affect their level of understanding of health information and the quality of treatment they receive. Therefore, it is the responsibility of health care professionals to encourage and motivate patients to communicate their needs clearly and fairly (Clancy, 2008).

Concerning the quality of information available to patients, Clancy, Brach, and Abrams (2012) described a Cultural Competence and Health Literacy Practices program (CAHPS). CAHPS assists in reporting the quality of information available in the health care system and in addressing its accountability. CAHPS included 30 questions that are part of the project supported by Agency of Healthcare Research and Quality (AHRQ) (See Appendix A). A cultural competence item set was designed as a separate section in CAHPS to assess the availability of health care services. This set consists of five content areas: 1) communication with health care providers, 2) self- management of diseases, 3) communication on medications, 4) diagnostic tests, and 5) medical forms.

For addressing health literacy in CAHPS, an item set was designed to assess health literacy from the patient's perspective, measuring the level of patient's trust in their health care providers, level of efficiency of the health care system in general, and decreasing the problem of inadequate health literacy. Health literacy is the responsibility of both the patient and the health care system. Patients may not have the capacity to understand and use health information. One indication of quality of the health system is the availability of resources for patients with low health literacy (Clancy et al., 2012).

The development of Health Literacy of Universal Precautions Toolkit (HLUP) was sponsored by the Agency for Healthcare Research and Quality (AHRQ) (DeWalt et al., 2011). This tool addressed the importance of patient literacy in understanding available health information. Health care providers can decrease the level of complexity in information by making it clear and simple enough to suit the needs of patients of all levels of health literacy. Feedback on quality and applicability of the toolkit was provided from physicians, nurses, practice management, and staff.

Patients with ULHL often leave the hospital unprepared without understanding how to manage their medications, when to return for follow-up appointments and/or how to carry out other discharge instructions due to ineffective communication skills. This misunderstanding of information can lead to recurrent hospital admissions (Clancy, 2009). The Agency for Healthcare Research and Quality (AHRQ) funded a project to improve the safety of patients after discharge from the hospital. The project aimed at educating patients after discharge. A Reengineered Discharge Program (RED) consisted of educational information for patients before and after discharge from the hospital (Jack et al., 2009). In addition, 'advocate' nurses worked with patients during their hospitalization by providing individualized booklets for patients and setting plans for follow-up appointments with pharmacists to review their medication. RED also consisted of numerous interventions performed while the patients were in the hospital and after they were discharged. Examples of interventions included discussing the importance of follow-up appointments, assuring clarity of information on appointment cards, reviewing medication plans, instruction on how to contact primary physicians, and reminding patients to review discharge plans.

Interventions in RED for patients with limited health literacy were conducted using techniques such as pictures, large fonts, and colors (Paasche-Orlow, Schillinger, Greene, & Wagner, 2006). Health literacy levels were measured using Rapid Estimate of Adult Literacy in Medicine (REALM). The program ensured that the information provided by the health care team was clear by using easy to read discharge instructions. The subsequent trials showed reduced hospital visits for patients with all literacy levels after being enrolled in the RED program. After discharge from the hospital, patient

hospital and emergency visits were measured. At 30 days, participants reported improved understanding of medical diagnosis, medication, appointments and self-care. The program was useful for patients with low and high health literacy. Some eligible participants were not allowed to take part in the study due to the staffing limitations, and it was conducted only in large urban medical health centers such as Boston Medical Center.

There are many tools that have been used in the past to measure health literacy, but many of these tools only measured functional health literacy (see Appendix A). However, Chinn and McCarthy (2013) developed a new tool named All Aspects of Health Literacy Scale (AAHLS) to measure health literacy (functional, communicative and critical). In this scale, Functional health literacy is defined as basic skills of reading, writing and basic health knowledge. The communicative literacy is the ability to apply obtained information. The critical literacy is an advanced cognitive skills to analyze the obtained information to be able to act as an advocate for own health and the health of community. The goal of this new tool was to fill the gap in previous tools that measure only functional health literacy. It also aims to help health care professionals screen patients with limited health literacy. AAHLS can be used to screen limited English patients (LEP), even those in health literacy classes. Developing a tool to measure health literacy should reflect the priority need of patients especially those of (LEP).

Chinn and McCarthy (2013) aimed to develop an easy-to-use tool, which could measure the three aspects (functional, communicative and critical) of patient health literacy. Identifying patients with low health literacy can guide health care professionals to identify patients' needs. A comprehensive review of literature on health literacy

definitions and measurements was conducted to propose a list of potential items such as questions designed to measure the ability of individuals to read health information and to access support/help (functional literacy). After consulting health care providers and users of health care, they created a 14-item tool to measure the three aspects of health literacy (functional, communicative and critical). These items were presented in 10 interviews with health managers and commissioners in England. Items were also used in seven focus groups with health workers and local service users. Later, Chinn and McCarthy (2013) conducted a pilot study (n = 146) in community and primary healthcare settings. AAHLS is a 7-minute scale with three points, which indicated adequate reliability (Cronbach's alpha = 0.74). The association of AAHLS has not been checked with standard health literacy tools such as TOFHLA which is considered as a limitation of the study.

Taking the preceding studies collectively, health literacy screening questions that measure the needs of individuals with low health literacy are grounded in five aspects: 1) communication with health care providers, 2) self- management of diseases, 3) diagnostic tests, and 4) medical forms. The three aspects of health literacy (functional, communicative, and critical) should be considered while planning for health literacy educational programs. Basic health information should be presented using strategies such as the teach-back method and visual aids. Individuals should also be motivated to communicate with the health care team to facilitate expressing their health concerns. Accessible information can guide them to navigate the health care system to reach appropriate health decisions.

CHAPTER III

METHODS

Purpose

The purpose of this study was to examine the effect of a 3-hour educational program on health literacy of Iraqi immigrants in the U.S. The content of the program included both functional and complex literacy skills using several teaching methods.

Design

This pilot study examined the effectiveness of a health care program. The design for this study was pretest-posttest single group design followed by post-intervention discussion. Health literacy was measured as baseline before the program (pretest) and after the program (posttest). Following the program, participants were invited to participate in a discussion group to describe the effectiveness of the health care program.

Philosophical Foundation

This pilot study was implemented in two consecutive steps: pretest-posttest single group and post-intervention discussion. The empirical data were used in quantitative phase (pretest-posttest) to test the effectiveness of the educational program. Data were collected by objective testing and analyzed statistically in the first phase. The post-intervention discussion aimed to collect the response of participants on the program activities or interventions. The output of the post-intervention discussion can guide

upcoming research on planning health care needs assessment programs for this population.

Sample

A convenience sample of Iraqi immigrant adults was recruited from a midwestern nonprofit agency. This agency's responsibility was to support new immigrants in their transition to life in the United States in the areas of employment and immigration services. Eligibility criteria for this study included Iraqi immigrants who: (a) were 18 years of age or older, (b) used English as a second language, and (c) lived in the U.S. for at least five months. The five months lead time was selected because immigrants, once they first arrive in the U.S. are busy with immigration documents and housing resettlements with assigned caseworkers before they start navigating the health care system. Furthermore, immigrants are eligible for refuge and immigrants assistance services such as case management for six months and in some situations for eight months (Department of Social and Health Services, 2012). Immigrants for more than five months are expected to be independent in navigating the health care system. Exclusion criteria include adults who: (a) were born in the U.S. and/or (b) who have previous medical knowledge/education. Previous medical education/knowledge can interfere with the study's health literacy intervention.

Sample Size

Using a priori G* Power analysis (difference between two dependent means) with a power of .80, an alpha of .05, and a medium effect size of .15, a total sample size of 40 was yielded for the pre-posttest design (Cohen, 1988). Interested participants were

invited for a post-intervention discussion. Nine individuals volunteered to participate in the sample. The discussion group was not representative due to self-selected bias. Participants were asked a set of predetermined questions by the primary investigator.

Variables and Measurements

Health literacy (the continuous dependent variable) was defined as the individual's ability to obtain, understand, and process basic health information (Speros, 2005). Health literacy was measured by the Test of All Aspects of Health Literacy Scale (AAHLS) before and after the intervention (see Appendices D & E). According to Chinn and McCarthy (2013), the scale was constructed to reflect three aspects of health literacy: functional (4 items), communicative (3 items), and critical health literacy (7 items). Questions (Emp) in critical health literacy items address empowerment of participants (community and social engagement). AAHLS is a quick scale with adequate reliability (Cronbach's alpha = 0.74).

The content and construct validity for the AAHLS was measured for a pilot study by Chinn and McCarthy (2013) among diverse population in London (White British, Asian, and Bangladeshi). Principle component analysis with varimax rotation was conducted to measure content validity and 59% of the variance with Eigen value greater than 1(3.78, 1.83, 1.38, and 1.31). For construct validity, scores of functional subscale were significantly associated with communicative subscale ($r = 0.393$, $p < 0.001$) and critical subscale items ($r = .59$, $p = 0.036$) and significant association between communicative and critical subscale ($r = 0.186$, $p = 0.017$). Generally, it takes less than 10 minutes to complete the scale.

Scoring of AAHLS

AAHLS is a 3-point Likert scale ranging from "rarely" (0), "sometimes" (1), and "often" (2). Questions in functional literacy subscale items only ranged as "rarely" (2), "sometimes" (1) and "often" (0). This step was constructed in this way by the primary investigator to keep the consistency of the scale and for easy data enclosure in SPSS. The critical subscale consists of 4CRQ and 3EmpQ. Scores for each literacy items (functional, communicative, and critical) and total score from all 12 items were summed (except Emp2 and Emp3 in critical health literacy) as these are yes/no and a/b questions. Empowerment questions (Emp2 and Emp3) were analyzed separately. The higher the score, the higher level of health literacy the person has. AAHLS was translated from English into Arabic (semantic translation) by the primary investigator (see Appendix F).

Needs Assessment

A needs assessment was performed to verify that there was low health literacy among Iraqi immigrants. Two discussion groups were convened: 1) Iraqi immigrants' families (see Appendix B) and 2) staff members of a nonprofit agency for immigrants (see Appendix B). In addition an in-depth phone interview was held with the director of a nonprofit agency (see Appendix B). Questions asked in the needs assessment were based on CAHPS items set and targeted five content areas: 1) communication with health care providers, 2) self-management of disease, 3) medication, 4) diagnostic tests, and 5) medical forms (see Appendix B).

First Discussion Group

Discussion group (n = 3) of Iraqi immigrants' families was conducted in a local Islamic center. The primary investigator welcomed the participants and explained that the identity of participants would not be revealed. The primary investigator also informed participants that all information collected would be used only for the purpose of identifying the need for a health care education program for Iraqi immigrants.

The discussion group contained the following questions: "Do you think health information provided by health care professionals is easy or difficult to understand? What type of health information do you consider difficult (x-ray procedure, consent forms, medications instructions, disease self-management, communication with health professional)?", and "Do you find this information difficult or easy (most of the time, sometimes, never)?"

Based on results from the discussion, all participants indicated that they had difficulty most of the time in filling out medical forms (consent forms), learning about their medical condition, filling out medical insurance plan papers, and asking health care professionals for consultation referrals when they had doubts about the information provided. Also, two out of three participants sometimes had difficulty in reading appointment cards, understanding written information (x-ray instruction), and understanding information provided by a health care professional regarding diagnosis. Furthermore, most of the time, two out of three participants had difficulty in following instructions on medication bottle labels (over-the-counter medication) (see Appendix B).

Participants in the discussion explained that there were several reasons for these difficulties in the health system in the U.S. such as:

1. Medical forms require information that they may not understand.
2. Health care teams do not explain all of the papers.
3. Over-the-counter medications are not common in Iraq.
4. Information in health insurance plan is complicated (Medicaid).
5. Consent forms sometimes are signed without even understanding all information.

Second Discussion Group

A second discussion group (n = 3) was conducted with staff members at a small agency to help immigrants. After introducing the goal of this discussion, participants were asked the same questions used in the previous discussion. Based on answers, the following literacy deficiencies were identified: one out of three participants stated that immigrants coming to the agency sometimes experience difficulty in reading appointment cards. Also, two out of three participants explained that immigrants sometimes experience difficulty in filling out medical forms (consent forms), understanding written information (x-ray instructions), learning about their medical condition, and asking for help to read hospital materials. All participants indicated that they noticed there was difficulty most of the time in understanding information provided by health care professionals regarding diagnosis, following instructions on medication bottle labels (over-the-counter medication), filling out medical insurance plan papers, and asking health care professionals for consultation referrals when they had doubts about the information provided (see Appendix B).

Staff stated that there are several problems the immigrants face when navigating the health care system in the U.S. such as:

1. Medication: Over-the-counter medication is not available in Iraq. Therefore, they need more information and education on over-the-counter medication.
2. Insurance: Immigrants do not fully understand the health insurance plan and the staff believes that this is one of the major problems.
3. Written documents: The staff indicated that immigrants sign written documents sometimes such as consent forms and registration forms without understanding all the information contained in the form.
4. Patient's rights: Immigrants need more information on their rights to discuss options with physicians and the right to ask for in-person interpreters. Some immigrants visit only Arabic-speaking physicians to avoid the embarrassment with English-speaking physicians.
5. Advocacy: They need to be motivated to advocate their right to ask for consultation and referrals if they are in doubt.
6. The staff indicated that all of the previous needs stated above are common among Middle Eastern immigrants when they first come to the U.S. They recommend conducting the program for Middle Eastern population in general, not just Iraqis so that they have the benefits of health information provided.

In-Depth Phone Interview

An in-depth phone interview was conducted with the director of the nonprofit agency. The outcome of this interview was informative for the health literacy program. The director explained that there is a continuous health need for this population. She emphasized that there is a need for education about health insurance plans, preventive care, self-management of chronic diseases, appointments, communication with

physicians, and health care service access. One major problem that is impacted by the lack of health care literacy is post-traumatic stress syndrome which is seen as one of the most important psychological health concerns for this population. The director anticipates requesting new staff with a degree in health education to organize and coordinate the health education for this population (anonymous, personal communication, Nov. 2014). Also, she indicated that the agency is applying for grant funding for a new project/ program on health. Health care Navigation Assistance is a pilot program proposed by the agency to provide health education. The program targets Iraqis, Kurds, Syrians, and other Middle Eastern immigrants who have recently arrived in the United States (see Appendix C).

Conclusion

In summary, Middle Eastern immigrants, including Iraqis, face numerous obstacles in navigating the health care system. They need more information on over-the-counter medications, insurance plans, written documents, communications with health care teams, self-management of chronic diseases, mental health awareness, patient's rights and health instructions with health care teams. Their needs are similar to the health literacy items discussed in CAHPS literacy content areas: communication with health care providers, self- management of diseases, and communication about medication, diagnostic tests, and medical forms (Clancy et al., 2012). There are different tools available to measure health literacy but not all of them measure the previous five content areas. Test of Functional Health Literacy in Adults (TOFHLA) measures literacy in chronic diseases management, diagnostic tests, consent forms, insurance and medication. According to Parker, Baker, Williams, and Nurses (1995), TOFHLA is a valid, reliable

instrument (Cronbach's alpha = 0.92), test-retest reliability, internally consistent (Pearson $r = 0.86$)) to measure patient's ability to read health-related materials. TOFHLA measures the five content areas by direct testing of reading ability. It is a 50-item reading comprehension and 17-item numerical ability test, taking up to 22 minutes to administer. There are no questions directed toward communicative or critical health literacy skills.

As explained in the needs assessment of immigrants, there is a need for communicative and critical health literacy skills such as learning about their medical condition, their right to discuss available medical options, right to ask for in-person interpreters, communicating with health care professionals and asking them for consultation referrals. Based upon literature review, AAHLS measures the three levels of health literacy (functional, communicative, and critical) with adequate reliability (Cronbach's alpha = 0.74) (Chinn & McCarthy, 2013). AAHLS provides four questions to measure functional literacy skills, three questions to measure communicative literacy skills and seven questions to measure critical literacy skills. This tool is congruent with the definition of health literacy and fills the gap in previous tools.

Conceptual Framework

An individual's ability to make decisions regarding health is dependent on their skills for acquiring relevant information and understanding the information. A high level of health literacy empowers individuals to make health decisions that are in their best interest. Improving both functional and complex literacy skills has the potential to motivate individuals to act as advocates for their own health. The conceptual framework developed for this study incorporates the findings of the literature cited previously.

As one looks at the diagram (see Figure 1), health literacy improves individuals' ability to make appropriate health decisions based on the health literacy definition proposed by Parker and Ratzan (2010). Functional literacy skills consist of two major parts: obtaining and understanding basic health information. The lower right box lists a number of methods that one should incorporate in helping individuals make appropriate health decisions such as 1) using plain/primary language, 2) incorporating a teach-back method, and 3) avoiding jargons.

Health information should be presented using simple words and plain language. Providing readable materials in one's primary language can help individuals understand health information. Often an immigrants's 'low' health literacy is accompanied with lack of accessibility of resources written in their primary language (Speros, 2005). Health information in this educational program was presented and explained in Arabic language. The teach-back method and repeated demonstration are two of the literacy sensitive methods noted by Kiser et al. (2012). It was used in this educational program to assess individuals' level of understanding. They were asked to restate required information in their own words.

Individuals with ULHL should be taught how to understand the basic health information in order to be competent in using it (Egbert & Nanna, 2009). Therefore, health information should be provided in clear simple words without using medical jargons. Also, Speros (2005) proposed using non-medical type language, open-ended questions' and speaking slowly while communicating with those who lack health literacy. Implementing the above strategies and providing readable information in the primary

language of the user can help those who have a ULHL obtain and understand health information.

Health literacy includes functional and complex skills. Providing easy-to-read information only is a narrow view for health literacy as Egbert and Nanna (2009) suggest. Complex health literacy takes into account both communicative and critical skills which consist of processing and communicating basic health information (Martensson & Gunnel, 2012). The lower right box lists a number of methods that one should incorporate to improve complex health literacy such as 1) enhancing verbal motivation, 2) creating a shame-free environment, 3) improving health knowledge, 4) developing familiarity with medical terms, 5) motivating shared decision with health professionals, and 6) managing available information.

Confidence to interact with the health care system can be strengthened by being able to read health information and being verbally encouraged (Speros, 2005). Individuals with ULHL can or often feel embarrassed and stressed due to their lack of health knowledge when they have to deal with their health issues. Therefore, providing a trustful and shame-free environment educational program is important in decreasing the level of stress among individuals since they would not feel challenged with difficult information.

Basic health information was provided in the educational program using clear simple words. Health literacy is essential in empowering individuals as obtaining health information has the potential for enhancing their knowledge about health and management of diseases (Nutbeam, 2008). It will also enhance the confidence to obtain and use health information. The educational program made available health information

and medical terminology to enhance individuals' critical skills by improving their knowledge about health and their familiarity with health care issues (Sykes et al., 2013). To this end, several strategies were used such as pictures, graphs, and audio-visuals. Other methods include repeating important words, and providing reasoning for that decision.

Developing critical and communicative skills can help those who have an ULHL evaluate the validity of the available health information (Chinn & McCarthy, 2013). A Patients' Bill of Rights document was explained in plain and simple words. Participants were motivated to ask questions to health care professionals and encouraged to seek better understanding of vague information. Not possessing a certain level of health literacy implies an unequal chance to communicate with health care professionals in an effective manner. Improving an individuals' health literacy and health information will enhance their capacity and motivation to communicate effectively with their health care team.

Complex literacy skills are considered as advanced critical and communicative skills. These advanced skills or "information appraisal" as Chinn and McCarthy (2013) described, enhance the ability of those who have ULHL to evaluate and analyze the information provided. The anticipated improvement in health knowledge and level of confidence can enhance their ability for information management (DeWalt et al., 2006). Strategies such as reinforcement with information, increasing motivation and managing scenarios decrease the risk of subsequent hospitalizations.

Individuals with ULHL should have the ability to interact effectively with health care providers in order to successfully navigate the health care system (Sykes et al.,

2013). Health literacy programs or educational materials should involve more than the accommodation of writing or reading skills. Individuals need to be educated on the use of various critical and communicative skills as they are vulnerable to health risk problems, misdiagnosis, and even limited accessibility to adequate information.

In summary, the educational program focused on health literacy skills both functional and complex. Functional literacy skills consist of obtaining and understanding basic health information. Several strategies were used in this study to enhance functional literacy skills such as plain/primary language, teach-back method, and simple words. Complex literacy skills consist of processing and communicating of basic health information. Several strategies were used to enhance complex skills such as verbal motivation/confidence, shame-free environment, health knowledge, medical terms familiarity, shared decision and information management. Culture and language was considered while presenting information in the health care educational program. This was accomplished using several tools such as the familiarity of primary investigator with the culture of the target population, easy to understand materials, teach-back method, pamphlets, instructions guides, and translation of information to the individual's native language. Complex information was explained in simple sentences and with visual aids.

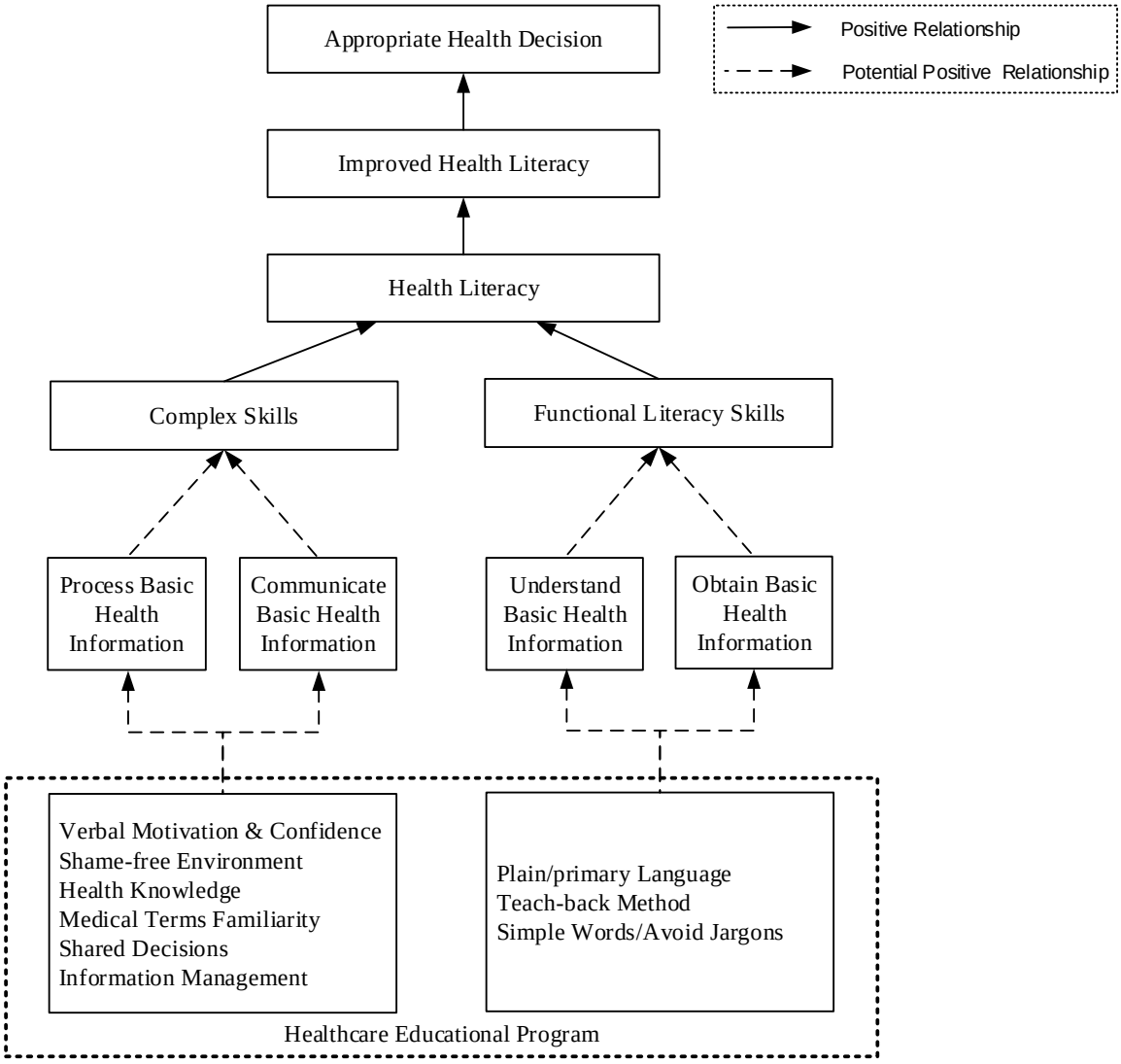

Figure 1. Health literacy conceptual framework. The definition of health literacy was adapted from "Health literacy: A second decade of distinction for Americans'' by R. Parker and S. Ratzan, 2010, *Journal of Health Communication*, *15*(2), 20-33.

Data Collection

The purpose of this study was to examine the effect of a 3-hour educational program on health literacy of Iraqi immigrants in the U.S. The design for this study was pretest-posttest single group design followed by post-intervention discussion.

Human Subject Review Board (IRB)

The study goal, benefits, and characteristics of potential participants were explained to the director of the nonprofit agency. An authorization letter was sought in December 2014 by the primary investigator to be included in Human Subject Review Board form at The University of Akron (IRB) (see Appendix G for letter of authorization). The study has been reviewed and approved by IRB (see Appendix H for IRB approval form).

Recruitment Procedure

Flyers were distributed in the nonprofit agency by the primary investigator and staff of the agency. Interested individuals contacted the director of the agency. The director forwarded phone numbers of potential participants to the primary investigator after having their permission (see Figure 2). The primary investigator phoned 40 potential participants and verified that they met the inclusion criteria. They were asked questions listed in the demographic questionnaire and were informed about the objectives, benefits, potential risks of the study (both quantitative and discussion group) (see Appendices I & J). They were asked when they would be available. Eligible participants were invited to a rented Islamic center to sign an informed consent and to participate in the health care program. The primary investigator communicated the date and place of study to the 40

participants. Two individuals refused to participate due to busy schedule, long work hours, and sickness. Two individuals wanted to check with their spouses and promised to call back to confirm but they did not. The primary investigator called them but there was no response. Some individuals were concerned about revealing their identity and the primary investigator assured that their identity would not be revealed. The date was selected based on the availability of the majority who accepted to participate in the study (March 4, 2015) (See Data collection Flowchart in Appendix K).

Pretest-Posttest Single Group

Following informed and written consent, the study was held at a rented center. They were asked to consider participating in the two phases. The program was presented in a culturally appropriate environment for this population. The participants and primary investigator prayed before the program. The program was initiated at the first level of the Islamic center. All participants and primary investigator were sitting in a circle. Traditional snack and drinks were prepared at the corner of the room for participants. The pretest (AAHLS) on yellow paper was provided to participants by the primary investigator. After the pretest was completed, participants were introduced to a 3-hour health care program. Health information was presented in the program using different tools: Arabic handout, picture story, video on health insurance, etc. All health information was presented in the Arabic language. A five to ten minute break was offered after each hour. Participants completed a posttest printed on white paper (AAHLS) packet to elicit the AAHLS scores after finishing the three hour program. The use of two different colors of the packets was to decrease a mix-up of the AAHLS pretest and posttest packets.

Human Subjects

All information was presented in Arabic language to protect and verify the approval of the participants. After answering all the questions (purpose of the study, benefits, risk, duration), a consent form was presented to participants to sign. Informed consent was written in both English and Arabic language (see Appendices L & M). Participants were provided with a duplicate copy of the informed consent they signed. They were reminded that participation was voluntary, without revealing their identity and they could withdraw from the study any time without any negative consequences. Participants who met the inclusion criteria and signed the consent form were included in the study. They were not exposed to any harmful substances or procedures.

Post-Intervention Discussion

Following the educational program, interested previous participants (n = 9) who participated in the educational program were invited to participate in a discussion for 30 minutes in the same center. The primary investigator explained the goal of this discussion, which was to collect the response (perception) of the participants on the effectiveness of program intervention. Identity of participants was not revealed and no audio or visual recording was conducted; only notes by the primary investigator were taken due to cultural consideration. Participants were reminded of their right to withdraw from the discussion at any time without any negative consequences. The primary investigator explained that semi-structured grand-tour questions in Arabic would be used in this discussion. Participants were asked the following questions: “What do you think about the health information provided today?” “In your opinion, which aspects of the session were helpful?” “In your opinion, which aspects of the program were not helpful?”

"Do you have any suggestions to improve future programs?" Probing questions were used as appropriate: "Could you tell me a little more why you think the program was helpful (or not helpful)?" Upon completion, the primary investigator thanked participants for their time and information.

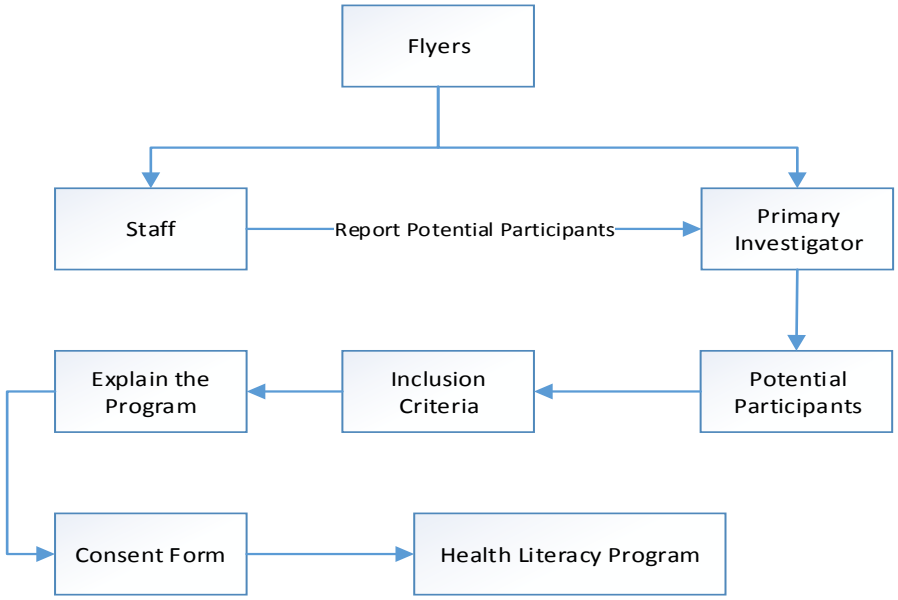

Figure 2. Process flow chart.

Intervention Protocol

The purpose of this study was to examine the effect of a 3-hour educational program on health literacy of Iraqi immigrants in the U.S. The content of the program included both functional and complex literacy skills using several teaching methods.

Curriculum

Patients with ULHL face challenges in accessing and using health information; however, collecting and understanding health information can assist patients in reaching proper health decisions. Parker and Kreps (2005) examined the influence of health literacy on the accessibility and usage of health information. The quality of any educational program is contingent on the methods used in an educational program. The traditional strategies of health literacy educational programs are to provide literacy interventions. This type of program aims to improve literacy skills in reading, numeracy, writing, and listening. There are some limitations for these programs such as a prolonged time required for the completion of the programs, and the programs focus solely on functional literacy skills.

Health literacy educational programs should consider improving the patients' skills in interpretation of health information, navigation of the health care systems, and communicative skills with health care professionals. Parker and Kreps (2005) explained that the culture also gives meaning to the health information in educational programs. Educational programs should be based on the needs of the patients and within acceptable contexts of linguistics and culture. "Culture is the core, fundamental, dynamic, responsive, adaptive, and relatively coherent organizing system of life designed to ensure the survival and well-being of its members and is shared always to find meaning and

purpose throughout life and to communicate caring" (Kagawa-Singer, Dadia, Yu, & Surbone, 2010, p. 17)

Culture affects thoughts, communication, values, and beliefs including those used to make health decisions. A majority of literature available on health literacy, according to the authors, does not consider the factors of culture or ethnicity. Cultural differences such as language, religion, misconceptions, traditional remedies, and health beliefs impinge on patient's adherence to health information.

The curriculum was defined as the planned guided learning experience that is organized in an effective structure to match the need of the target audience (Brady, 1986). The curriculum was focused on the learner and the modules of the curriculum were based on the needs of the target population. The curriculum was used to guide the primary investigator in designing educational materials for the program. The curriculum followed Adult education Lesson Plan (AELP) and Adult Education Program (ABE/GED) (see Appendix N). The content of the program was presented in a culturally acceptable curriculum designed by the needs assessment, literature and the familiarity of primary investigator with the culture of participants. During the program, the primary investigator approached participants in a respected manner, using eye contact, culturally appropriate words, images, and video content.

The content of the program included general health information that individuals with low health literacy can use to reach health decisions (consent forms, insurance, medication, etc.).The primary objectives of the educational materials in the program were to improve health knowledge in the five major areas discussed in literature and needs assessment: (a) communication with health care providers, (b) self-management of

diseases, and communication on (c) medications, (d) diagnostic tests, and (e) medical forms. The materials were written below fifth grade level and in the primary language of participants (see Appendices O & P). Methods of education included short presentation, discussion, picture story, audio-visual and handouts (See Appendix Q for detailed curriculum modules).

Educational Program

The intervention of a 3-hour health care program was held at a rented Islamic center close to the agency which participants could easily reach. It aimed to improve both functional and complex literacy skills of the participants. To improve participants' functional literacy skills, materials including easy-to-read (avoiding jargons) health information were provided at the beginning of the session. Information in the program was presented in Arabic using several resources from the National Network of Libraries of Medicine (NN/LM) and the National Institutes of Health (Medline Plus /NIH).

To increase complex health literacy skills, covered information included over-the-counter medication, setting up appointments, patient's rights, and selected common medical terms. Increasing their confidence and motivation to ask questions was one of the foci in order to enhance participants' interactive communicative skills. The teach-back method was applied and participants were asked to restate required information in their own words. The primary investigator asked participants "Can you tell me what you learned in this program?" One of the participants said "we have the right to ask questions if in doubt." Then another participant stated "we have the right also to ask for an interpreter if we cannot read written information." Primary investigator asked "what other information did you learned in this program?" A participant said "there are some

resources in Arabic such as MedlinePlus that we can use to read more information about our illness." A traditional Iraqi snack was provided and transportation fees were paid at the end of the program as a gift card ($10) due to cultural consideration for this population.

Pretest-Posttest Single Group Data

The primary investigator welcomed the 30 participants who accepted to participate in the program and they were reminded of the program goal and their right to withdraw from the program at any time without any consequences. They were assured that their decision about whether or not to participate would not affect the service they received from the agency. Participants were assured confidentiality and outcomes of the program, if published, would not reveal their identity. Also, they were assured that they would not be recorded or photographed during the program. Participants completed pretest (AAHLS). The primary investigator then collected all sheets to initiate the program. The program was planned and structured as modules with different goals for each module.

Module One

The goal for the first module was to improve communication with the health care team. In this module, the document "Be Our Partner for Safe Health Care" was explained. The primary investigator explained several recommendations that would enhance their visits with health care team:

1. They are partners with the health care team in health their health care decision making.

2. They should explain all of their needs and concerns (belief, customs, and foods).
3. It is their right to ask questions and to receive simple clear answers.
4. They should inform the health care team about previous medical history, list of medications and allergies.

A picture story of a doctor's appointment was also presented to participants. The picture story displayed a patient with limited English language skills with his/her doctor. The doctor was talking to the patient and explaining diagnosis and treatment plan without an interpreter. The doctor asked the patient if he/she understood instructions given. The patient was ashamed to admit that he/she did not understand instructions. The patient left the clinic with concerns, worry, and shame. A family member at home asked the patient about his/her diagnosis and treatment plan. The patient replied that he/she did not understand most of the instructions and was ashamed to ask. The participants inspected the picture story then they were asked a set of questions, including: Has this ever happened to you? What do you think the patient in the story should do? Why? What do you think the doctor should do? This activity was used to emphasize several concepts, such as:

1. Patients have the right to ask for an interpreter at any time.
2. Patients have the right to ask the doctor to use simple words without using medical terminology.
3. Patients are not expected to be health experts and they should not feel ashamed to ask questions.

4. If patients did not understand a diagnosis or treatment plan, then they cannot follow required directions.
5. Unclear or unexplained medical instructions can lead to serious health hazards and medication errors.

Module Two

The goal for module two was to improve self-management of diseases. Written materials in Arabic (Initial Health Assessment, Appointment Reminder Card, Better Health Begins with You, and Healthy Living in the U.S.) were explained and discussed. The health materials were introduced to reinforce knowledge and access to available medical resources in Arabic, such as MedlinePlus. Strategies such as the teach-back method, break down complex information, and verbal discussion were used. The "Better Health Begins with You" document presented several interventions to maintain healthy life style: healthy meals (vegetables and fruits), drinking water, regular exercise, low fat meats, low-fat dairy products, and limited alcohol. The appointment card health materials reminded participants to bring the following items to their appointments: health insurance card, list of current medications, co-payment, and any previous medical records and tests or x-ray images. Initial Health Assessment and Healthy living in the U.S. health materials present possible questions health care team usually ask during health assessment of immigrants. The materials also list many health terms in both Arabic and English. Participants were reminded that they can have similar resources available in Arabic using MedlinePlus.

Module Three

The goal of module three was to improve knowledge of over-the-counter medications and directions (dose, frequency, precautions). A packet listing common over-the-counter medications (Safety Med and Generic/Brand Medicine) was clarified in details. The primary investigator explained the list of over-the-counter medications that could be used such as Tylenol, Ibuprofen and Zyrtec. Two strategies that were used included reading instructions of some medications then circling all the important information, and organizing information to present two or three concepts a time. Taking Meds Safety and Using Medicine Dropper documents explained that taking medication is part of treatment and injury at the same time. Guidelines and tips to follow with medicine were offered:

1. Take medicine on time.
2. Read side effect of medication.
3. Refill medication one week before it is empty.
4. Throw way unused and expired medication bottles.
5. Use medicine dropper.

Module Four

Module four introduced written materials (Home Care Instructions after Surgery, Echocardiogram and X-Ray procedure) to improve knowledge of diagnostic tests. Strategies used included preparing a written list of questions before meeting with the health care team and instructing participants to write instructions in their primary language. The written materials listed several recommendations to do before, during, and after diagnostic procedures such as:

1. Remove clothing with metal before procedure.
2. Remove jewelry before procedure.
3. Follow guidelines from staff during diagnostic images
4. Discuss the results with your doctor.
5. Ask for an interpreter during your visit.

Module Five

The video "Refugees and the Affordable Care Act-Arabic" was introduced in module five to increase awareness of medical forms (consent forms) and insurance (Medicaid). The primary investigator encouraged participants to ask health care team members to explain medical forms in details in their primary language and urged participants not to sign any form if they are in doubt. The video "Refugees and the Affordable Care Act" explained available health insurance plan for immigrants. The primary investigator also discussed the importance of reading all documents of health insurance before choosing specific insurance plan. Participants were asked to paraphrase health information provided in their own language to reassure their level of understanding. The primary investigator showed appreciation to the participants for their participation and they completed a posttest (AAHLS).

Post-Intervention Discussion

Following the program, the primary investigator explained that their perception is important to describe the effectiveness of the program. Participants were invited to participate in a discussion group. The primary investigator informed participants that all information would be kept confidential and their identity would not be revealed.

Participants were informed that the discussion would not be taped or recorded at any time. Interested participants (n = 9) were informed of the goal of the discussion which was to describe the effectiveness of the program.

The post-intervention discussion was conducted in a room with chairs arranged as a circle with no tables. The primary investigator wrote notes and answers of participants during the discussion group. The discussion group was conducted for 30 minutes. The primary investigator initiated the discussion with semi-structured, grand-tour questions:

1. What do you think about the health information provided today?
2. In your opinion, which aspects of the session were helpful?
3. In your opinion, which aspects of the program were not helpful?
4. Do you have any suggestions to improve future programs?
5. Could you tell me a little more why you think the program was helpful (or not helpful)? The primary investigator wrote down their input and asked if they have any suggestions for future programs. Following the discussion the primary investigator thanked participants for their cooperation and time

Data Management/Analysis

This pilot study consisted of two approaches: Pretest-posttest single group which was followed by a post-intervention discussion. Pretest-Posttest single group was analyzed using Statistical Package for Social Sciences (IBM SPSS Statistics for Windows) to compute the mean difference of health literacy before and after the health literacy program.

Pretest-Posttest Single Group

For pretest-posttest single group data, SPSS version v22 was used. Data were screened for missing data by running frequency tables using SPSS and were treated based on their missing type (Munro, 2001) (see Appendix R). Single imputation (replacing missing values (PreFQ4 and PostCQ3) with the mean of that variable for all other cases) was conducted (2 items) since it is less than 5% and had a small sample size (M = 30). Descriptive statistics such as the mean, mode, median, range, and standard deviation were used to describe the participants' demographic characteristics of age, gender, education, and marital status. Dependent *t-test* as the inferential statistical technique was used to compute the difference between the pretest and posttest AAHLS scores. The alpha was set at .05. Prior to the dependent *t-test* analysis, the underlying assumptions of normal distribution and homogeneity of the variances were examined (Hulley, Cummings, Browner, Grady, & Newman, 2007*)*.

CHAPTER IV

RESULTS

Introduction

This pilot study was conducted in a large Midwestern city. The purpose of this study was to examine the effect of a 3-hour educational program on the health literacy of Iraqi immigrants in the United States. The research question for this study was: Is there a difference in the health literacy of Iraqi immigrants following a 3-hour educational program focusing on health care literacy? A pretest-posttest design was used to answer the question. Health literacy was measured using AAHLS score before and after participating in the health literacy program. This chapter covers sample characteristics and statistical analysis.

Study Sample

A convenience sample (non-probability) was recruited from a nonprofit agency. Thirty Iraqi immigrants participated in this study. The Statistical Package for Social Sciences (SPSS) version v22 was used to analyze the participants' demographic characteristics of age, gender, education, ethnicity, and marital status.

Table 1

Demographic Characteristics

		n	*M*	*SD*	Percent
Participants' Age	25 - 34	9	38.9	11.7	
	35 - 44	14			
	45 - 54	4			
	55 - 64	2			
	65 and Over	1			
Gender	Male	7			23.3
	Female	23			76.7
Marital Status	Single	11			36.7
	Married	16			53.3
	Divorced	1			3.3
	Widowed	2			6.7
Education Level	High School	12			40
	College	16			53.3
	Graduate	2			6.7

Note. Standard Deviation= *SD*. Mean (*M*) average for age in this sample was 38.9 with minimum age of 23years.).

The sample was predominantly females (76%), with a college degree (53%), were married (53%), and migrated in 2014 to the U.S. (56%). As indicated in Table 1, 23 females and 7 men participated in the study. This could be due to a cultural issue since the primary investigator, who recruited them into the study was a female. The sample included participants who are married (16) single (11), widowed (2) and divorced (1) (see Table 1).

Pretest-Posttest Single Group

Statistical analysis was conducted using SPSS (version 22) with a level of significance of .05. The Kolmogorov-Smirnov test and Shapiro-Wilk test for the dependent variable was conducted to examine underlying assumptions of normality.

Table 2

Test for Normality of the Dependent Variables

	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	*df*	*p*-value	Statistic	*df*	*p*-value
PreFQ	.197	30	.004*	.911	30	.016*
PreComQ	.193	30	.006*	.928	30	.043*
PreCrQ	.183	30	.012*	.938	30	.078
PreTotal	.149	30	.087	.961	30	.335
PostFQ	.258	30	.000*	.891	30	.005*
PostComQ	.213	30	.001*	.831	30	.000*
PostCrQ	.210	30	.002*	.927	30	.042*
PostTotal	.154	30	.066	.931	30	.053

Note. [a] Lilliefors Significance Correction. Total score from Pre and Post meets the assumption of normality.
* $p < .05$.

Significance value in Kolmogorov-Smirnov was .087 (PreTotal) and .066 (PostTotal) which is >.05 the null hypotheses of normal distribution was accepted (Razali & Wah, 2011). The significance in Shapiro-Wilk test for normality was .335 (PreTotal) and .053 (PostTotal) which is >.05 (see Table 2). Therefore, the null hypothesis of normal distribution was accepted. Furthermore, PreCrQ is normally distributed (.078 > .05). The other subscales were not normally distributed based on the

Shapiro-Wilk test. However, the paired *t-test* is highly robust against violation of normality assumptions (Wiedermann & von Eye, 2013). Also, the PreTotal histogram's shape approximates a bell-curve (visual inspection) and suggests that the data have come from a normal population. Total scores from Pretest and Posttest met the assumption of normality as indicated also in the visual inspection of *Q-Q* Plot of PreTotal (dots are approximately on the line) (see Appendix S). The histogram's shape of PostTotal approximates a bell-curve and *Q-Q* Plot of PostTotal (dots are approximately on the line) (visual inspection) (see Appendix T).

Skewness and Kurtosis

Data are expected to have some skewness and kurtosis as long it is not large compared to their standard error. The Z value should be somewhere between -1.96 and 1.96 (Doane & Seward, 2011). The Skewness and Kurtosis for PreFQ were 1.642 and .379 respectively (within range). The Skewness and Kurtosis for PreComQ were -1.094 and -.349 respectively (within range). The Skewness and Kurtosis for PreCrQ were .955 and -.469 respectively (within range).

The Skewness and Kurtosis for PostFQ were -.494 and .523 respectively (within range). The Skewness and Kurtosis for PostComQ were -2.779 and 1.345 respectively (Skewness is out of range while Kurtosis is within range). The Skewness and Kurtosis for PostCrQ were -.740 and -.445 respectively (within range). Therefore, subscales fall within range of normal skewness and kurtosis except PostComQ. Mean and SD values were relatively similar, which meets the assumption of homogeneity. The trimmed mean 5% was not very different from the mean for subscales which indicate that deleting lower and upper 5% of values (outliers) will not affect the mean (see Appendix U).

Table 3

Paired Sample *t-test*

		M	*SD*	Std. Error Mean
Pair 1	PreFQ	4.77	1.251	.228
	PostFQ	4.10	.960	.175
Pair 2	PreComQ	3.80	1.324	.242
	PostComQ	4.57	1.612	.294
Pair 3	PreCrQ	3.50	1.697	.310
	PostCrQ	5.97	1.326	.242
Pair 4	PreTotal	13.13	3.048	.557
	PostTotal	16.03	3.135	.572

Note. Paired Sample *t-test* compares the means between two related groups on the same continuous, dependent variable.

Dependent *t-test* was computed to measure the difference between the pretest and posttest AAHLS scores. The mean AAHLS score for the pretest was 13.3, and the mean score for posttest was 16.03. The standard deviation (*SD*) for each group was approximately 3.0 (see Table 3).

Table 4

Paired Sample *t-test*

		Paired Differences							
					95% Confidence Interval of the Difference				
		M	*SD*	Std. Error Mean	Lower	Upper	*t*	*df*	*p*-value
Pair1	PreFQ - PostFQ	.667	1.348	.246	.163	1.170	2.710	29	.011*
Pair2	PreComQ - PostComQ	-.767	1.455	.266	-1.310	-.223	-2.887	29	.007**
Pair3	PreCrQ - PostCrQ	-2.467	2.285	.417	-3.320	-1.613	-5.912	29	.000***
Pair4	PreTotal - PostTotal	-2.900	3.231	.590	-4.106	-1.694	-4.916	29	.000***

Note. (Dependent *t-test* for total score where t (29) = -4.917, $p < .001$).
*$p < .05$. **$p<.01$. ***$p <.001$.

The mean differences between pre- and posttest for FQ, ComQ, CrQ were .667, -.767, and -2.467, respectively. According to paired sample *t*- test, the mean difference between PreTotal and PostTotal was -2.9, which indicates that on average participant scored 2.9 points higher than same participants at pretest. Results indicate a significant improvement of PostTotal health literacy scores (M = 16.3, SD = 3.04) over PreTotal health literacy score (M = 13.13, SD = 3.13), t (29) = 4.917, $p < .001$. AAHLS total score at the posttest was 16.03 (SD = 3.048), while the average score at pretesting was 13.13 (SD = 3.135). The data indicate there was also significant growth from pre- to posttest on the ComQ subscale ($p = .007$) and CrQ subscale with ($p < .001$). For the FQ subscale, the posttest mean score M = 4.10 was less than the pretest mean score M = 4.77 (see Table

4). Despite the decrease in the mean (mean difference .667), the *p* value was .001 which is < .05. So, improvement of functional literacy scale was not similar to the other subscales. Overall, respondents showed significantly different responses on the AAHLS domains between pre- and posttest. The total score reflects the largest amount of difference between pre- and posttest.

Internal Consistency

An estimate of internal consistency associated with the score (Cronbach alpha) was conducted. Cronbach alpha was (.801) which means that 80% of the variability in a combined items was considered true score variance (internally consistent and reliable). In the inter-item correlation the correlation between items should be above.3 or above .5. If correlation is negative or less than .3 or close to zero, that means less correlation between items and maybe the items are not measuring the same thing. Based on the inter-item correlation table in this study, the majority of the items were positively correlated except items PreCr (-.130) and PostCrQ (-.130). Some of the items also were less than .3 such as PreFQ. Thus, deleting any item to improve the Cronbach's alpha should be checked by looking at Item-Total Statistics. Corrected item-total correlation between items and score of all other remaining items indicate high correlation of (Post Total, Pre Total, Post CrQ, PostComQ, PostFQ, PreCrQ, PreComQ, and PreFQ) (.725, .710, .425, .634, .423, .426, .640, and .389) respectively. PreFQ only indicated lower corrected item-total correlation (.389) with Cronbach's Alpha if item deleted (.796) compared with initial Cronbach alpha (.801) and there was an added benefit by adding it to the scale (see Appendix V).

Empowerment Questions (Emp)

Empowerment questions in critical health literacy items (Emp) addressed the ability to empower participants to the level of community and social engagement. Chinn and McCarthy (2013) who created this tool added these two questions as part of empowerment measurements. This empowerment is assumed to be evolved in critical literacy after enhancing the previous two aspects of health literacy (functional and communicative).

Table 5

Yes/No Pre and Post Emp Q2

		Frequency	Percent
Pre Emp Q2	Yes	12	40
	No	18	60
Post Emp Q2	Yes	14	47
	No	16	53

Note. Emp 2 is two response items: Yes/No

In the PreEmp Q2, only (40%) of the participant compared with (47%) in PostEmp took action toward health issues in the past. This finding indicates that 14 participants had the ability to advocate for health issues. This advocacy is considered as a measure for the participants' empowerment which is part of critical health literacy. In posttest two participants changed their response that they took action in the past toward health issue (see Table 5). The educational program should not impact the response to this question because the question asked about past experience. The two participants potentially misinterpreted the question.

Table 6

A/B Pre and Post Emp Q3

		Frequency	Percent
Pre Emp Q3	A	22	73
	B	8	27
Post Emp Q3	A	18	60
	B	12	40

Note. (A) Information and encouragement to lead healthy lifestyles. (B) Good housing, education, decent jobs and good local facilities.

Information and encouragement take the priority in leading to healthy life style for (73%) of participants in PreEmp compared with (60%) in PostEmp. The importance of other factors of good housing, education, decent jobs and good local facilities were recognized by (27%) participants in PreEmp compared with (40%) participants in PostEmp (see Table 6). This finding indicated that participating in the health care program improved the critical health literacy skills of recognizing the influence of these factors on health.

Analysis Based on the Aspects of Health Literacy

This pilot study was conducted to analyze the effectiveness of a 3-hour health literacy program for Iraqi immigrants in the United States. The research question for this study was: Is there a difference in the health literacy of Iraqi immigrants following a 3-hour educational program focusing on health care literacy? Health literacy was measured before and after a health care program using the AAHL scale. This scale has three subscales (functional, communicative, and critical health literacy). Critical health literacy

has specific questions to measure empowerment (Emp) (community and social engagement).

Functional Health Literacy

This subscale consisted of four questions to test for functional health literacy. The aim of these questions was to detect if individuals lack the skills of functional health literacy such as: understanding health information provided, familiarity of available resource to ask for help and the ability of completing official documents. Participants answered questions in the scale: Do you need someone to help you when you are given information to read by your doctor, nurse, or pharmacist (medication, x-ray, pre and post-operative instructions)? When you need help, can you easily get hold of someone to assist you? Do you need help to complete official documents (consent forms, Medicaid)? Do you need help with over-the-counter medications? Participants were provided with health information written in the Arabic language and after the program they were asked: Do you need someone to help you when you are given information to read by your doctor nurse or pharmacist (medication, x-ray, pre- and post-operative instructions) after being introduced to health information in the Arabic in the program? When you need help, can you easily get hold of someone to assist you? Do you need help with over-the-counter medications?

The findings of this study indicated that the total score of health literacy was improved following the educational program. The improvement in the functional subscale was not similar to the improvements in the other subscales. Lower corrected item-total correlation of PreFQ (.389) is a potential explanation. But, Cronbach's Alpha if item deleted is .796 compared with initial Cronbach alpha .801 so there is an added

benefit by adding it to the scale. This finding did not impact the goal of the pilot study which was to test the effectiveness of the educational program on health literacy of Iraqi immigrants that was significantly improved after the program.

Communicative Health Literacy

This subscale measured communicative health literacy. Participants answered questions in the subscale before and after the program: Do you have to provide all information that doctor or nurses need to help you? Do you have to ask questions you need? Do you have to make sure they explain everything you do not understand? Participants were then introduced to several health materials and strategies to help explain the importance of providing all information to doctors and nurses, the patient's right to ask questions or even to ask for a professional interpreter, and the importance of understanding all the health care information provided before they leave health setting. Some health materials were used to educate participants, such as a picture story of a doctor's visit and the "Be Our Partner" document. The participants then were asked again same questions. The findings of this study indicated that there was an improvement in communicative health literacy scale (mean differences between pre- and posttest is -.767).

Critical Health Literacy

Participants were asked four questions listed in the scale before and after the health care program: Do you have to find out lots of different information about your health? Do you have to think carefully whether health information makes sense in your particular situation? Do you have to work out whether information about your health can

be trusted? Do you think you can question your doctor's or nurse's advice based on your own research? Participants then were introduced to several educational materials and methods to explain patients' rights, the importance of being a partner in health decisions and available resources in their native language that could be used to enhance knowledge of some medical procedures. Participants were motivated to ask health care team to explain medical procedures in clear simple words. Participants were encouraged to use resources in their native language to read required health information. Moreover, they were advised that it is their right to ask questions of health care team at any time. They were reminded that it's their responsibility to provide all health history and to do their own research on suggested medical procedures. They were assured that it is their right to ask for a second consultation. There was an improvement in critical health literacy after being introduced to the program (mean differences between pre- and posttest is -2.467).

Empowerment Questions (Emp)

Critical health literacy is the higher order process that could be enhanced by education. Critical health literacy then can improve the skills of evaluation of health information given. This capacity is what is described as empowerment. Empowerment can enhance the skills of individuals to advocate for their health and the health of community. Education is very important to improve health knowledge but there are other factors such as work, living condition, and good local facilities. Empowerment questions include the following: Do you think there are plenty of ways to have a say in what the government does about health? Within the last 12 months have you taken action to do something about a health issue that affects your family or community? What do you think

matters most for everyone's health: (a) Information and encouragement to lead healthy lifestyles, (b) Good housing, education, decent jobs and good local facilities.

These questions are considered as an advanced level of critical health literacy. Individuals with improved critical health literacy should pay attention to the health of community. Individuals cannot reach that stage of advocacy (health of the community) if cannot advocate for own health. Participants in pretest (40%) reported that they took some action toward health issues and (73%) indicated that education and motivation is what matter most for health in general. In posttest (40%) of participants considered other factors of good housing, education, decent jobs and good local facilities. So, critical health literacy skills improved after participating in the health literacy program.

Post-Intervention Discussion

Participants in the post-intervention discussion expressed that health information provided in the program was very useful since it was presented in Arabic language. They explained, "We feel really comfortable that you are explaining these documents in Arabic for us." Participants added that using Arabic language in the program was helpful in understating the educational materials, asking questions and in discussion. The audio-visual on health insurance was helpful and participants stated that there is a need for similar audio-visual for other health issues in Arabic language. Furthermore, participants suggested to have similar programs in a regular manner and explained "Your program is only for one time and we need such program to be conducted in a regular manner to help us understand the health system in the U.S." Participants expressed their gratitude to the content of program in Arabic and stated that "This program really addressed our concern regarding the health system in the U.S." Participants clarified that "Our health system in

Iraqi is totally different and we hope to have a consultation center for health issues in Arabic".

Summary

The purpose of this pilot study was to examine the effect of a 3-hour educational program on the health literacy of Iraqi immigrants in the United States. The research question for this study was: Is there a difference in the health literacy of Iraqi immigrants following a 3-hour educational program focusing on health care literacy? The findings of this pilot study supported that the total score of response to the questions in the scale in posttest was improved. So, there is a difference in the health literacy of Iraqi immigrants following an educational health care program. Thirty immigrants participated in the health literacy program and were provided with health information. Health literacy was measured before and after the health literacy program using AAHLS scale. Following the program, nine interested participants were invited to participate in a post-intervention discussion to describe the effectiveness of the program. Results indicate a significant improvement of PostTotal health literacy scores (M = 16.3, SD = 3.04) over PreTotal health literacy score (M = 13.13, SD = 3.13), t (29) = 4.917, $p < .001$. The health literacy program in general was successful in improving health literacy. The improvement of functional health literacy subscale was not similar to the improvement of other subscales (communicative and critical).

Based on the response of the participants, the health information in the program was useful such as the written handout, audio-visual and discussion in Arabic. Using Arabic language for written handout discussion and motivation was very beneficial in creating the shame-free environment. The participants expressed their needs and concerns

in navigating the health system in the U.S. Participants indicated that new immigrants to the U.S need a consultation center for health issues. Participants described that there is a need for similar programs to be conducted in a regular manner to address the health concerns and questions of immigrants. Participants clarified that the health system in the U.S is different than the health system in Iraq and new immigrants need an orientation program on the navigation of the health care system. The post-intervention discussion group emphasized the needs of this population for educational health care programs among immigrants in the U.S.

CHAPTER V

DISCUSSION

Introduction

The purpose of this pilot study was to examine the effect of a 3-hour educational program on the health literacy of Iraqi immigrants in the United States. The effectiveness of this program was tested by conducting a pretest-posttest single group (n = 30) of Iraqi immigrants. This population encountered the challenges of low health literacy and a language barrier in a foreign country (Inhorn & Serour, 2011). Following the program, a post-intervention discussion was conducted to describe participants' perceptions on the program's effectiveness.

Functional Health Literacy

It is imperative to be attentive to the full definition of health literacy as the ability of patients to obtain understanding and process health information in order to reach appropriate health decisions. The program in this pilot study included several activities to improve the three aspects (functional, communicative, and critical) of health literacy. It was presented in a shame-free environment by using clear, simple words and avoiding medical terminology. The primary investigator spoke in Arabic for the entire program to create the sense of comfort. Health materials in the program, either verbal or visual, were presented in Arabic. A shame-free environment is very important to decrease level of stress and to increase trust (Speros, 2005).

Health literacy is considered a clinical risk because it leads to ineffective use of resources, medication non-compliance, and poor self-management (Nutbeam, 2008). Several health materials such as Healthy Living in the U.S., Better Health Begins with You, and Initial Health Assessment were presented in the program to improve knowledge of health issues. The primary investigator explained to participants that patients in health care facilities have the right to ask for an interpreter and have the right to ask questions at any time. Resources with health information that participants can easily access and use were recommended. Participants were also motivated to use resources like MedlinePlus, which is a friendly source that provides different topics in health translated to several languages. Providing accessible resources is the first step in improving health literacy (Egbert & Nanna, 2009).

Based on the results of this pilot study, the mean of AAHLS total score for the pretest was 13.3, and the mean of total score for the posttest was 16.03. Although the health literacy total score improved after the program (mean difference between pretest and posttest is -2.9), the functional literacy subscale did not show similar improvement between pretest (M = 4.77) and posttest (M = 4.10). The functional literacy score is linked to set of questions: Do you need someone to help you when you are given information to read by your doctor, nurse, or pharmacist (medication, x-ray, pre and post-operative instructions)? When you need help, can you easily get hold of someone to assist you? Do you need help to complete official documents (consent forms, Medicaid)? Do you need help with over-the-counter medications? Questions in functional literacy score aimed to measure the functional literacy skills of participants and whether providing health information in native language can improve these skills. Functional skills consist

of one's reading ability of written document such as consent forms, medical insurance, and over-the counter-medication instructions. There was also a question asking if participants are aware of their right of requesting an interpreter to translate anything they cannot read.

The findings of this subscale indicate that providing health information in participants' native language improved functional health literacy (p = .001) but not similar to the improvement of other subscales. This finding did not impact the purpose of this study which is to test the effectiveness of the educational program by measuring health literacy before and after program. The total score for health literacy, t (29) = 4.917, p < .001. So, health literacy improved significantly after participating in the health care educational program.

Complex Health Literacy

Enhanced health knowledge and medical terminology can improve cognitive skills, which is a key factor to enhance critical health literacy (Sykes et al., 2013). The program included variable health information such as list of common over-the-counter medications, appointment cards, common medical terms used, and post-operative home-care instructions. Furthermore, a picture story was used to explain that health decision making is a shared responsibility between patients and their health care team. Health information was presented using different tools such as audio-visual materials on health insurance in the U.S. in the Arabic language.

Individuals should have the ability to interact with the health care system to acquire information and have high confidence in their ability to use this information. Providing health information and encouragement can empower patients (Nutbeam,

2008).The shared responsibility between patients and their health care team is also important. The primary investigator introduced methods and activities to navigate the health care system in the U.S. This was accomplished by explaining information in several health materials to participants such as “Be Our Partner for Safe Health Care” that stressed the importance of patients taking action in health decision making. The primary investigator also explained the patient’s rights and responsibilities in navigating the health care system in the U.S., such as available health resources in the Arabic language (MedlinePlus), asking for professional interpreters, and not signing any documents if they are in doubt or do not understand the details.

Health literacy information and interventions used in the program was successful in improving complex health literacy (communicative and critical). Creating a shame-free environment was useful in improving the total health literacy score. The findings of this pilot study depicted an improvement on communicative and critical health literacy aspects (the mean difference between pretest and posttest for ComQ and CrQ is-.767 and -.467, respectively). Communicative health literacy score (ComQ) was measured using a set of questions: Do you have to provide all information that doctors or nurses need to help you? Do you have to ask questions you need? Do you have to make sure they explain everything you do not understand?

Individuals with limited health literacy often feel embarrassed to ask questions (Martensson & Gunnel, 2012). The goal of communicative health literacy questions is to measure the channel of communications between the participants and their health care team. This set of questions in communicative health literacy scale aimed to provide recommendations such as providing information to one’s health care team (e.g., medical

history), asking questions to one's health care team, and making sure that the information provided is clear. Ineffective communication between patients and their health care team can result in recurrent hospital visits, improper use of emergency rooms, and medication errors (Clancy, 2009). Incomplete medical history for example can affect the treatment plan, medications regimen, etc.

Furthermore, critical health literacy was linked to a set of questions CrQ: Do you have to find out lots of different information about your health? Do you have to think carefully about whether health information makes sense in your particular situation? Do you have to work out whether information about your health can be trusted? Do you think you can question your doctor's or nurse's advice based on your own research? The questions in critical health literacy scale aimed to measure the higher appraisal of participants. This set of questions consisted of several strategies to be utilized in health decision making, such as the use of other resources to collect information, evaluating the information even if it is provided from one's health care team, and the right to ask for second consultation. In critical health literacy, the participants are motivated to collect health information using available resources and to think carefully on information provided.

Analysis Based on the Conceptual Framework

As explained in the conceptual framework, health literacy could be improved by improving both functional and complex health literacy (see Figure1). Functional health literacy consists of two parts: obtaining and understanding basic health information. Based on previous literature, functional health literacy could be enhanced by several methods such as: (a) using plain/primary language, (b) incorporating a teach-back

method, and (c) avoiding jargon. The other arm of the conceptual framework includes the complex health literacy: communicative and critical skills, which consist of processing and communicating basic health information. Complex health literacy could be enhanced using methods such as (a) enhancing verbal motivation and confidence, (b) creating a shame-free environment, (c) improving health knowledge, (d) developing familiarity with medical terms, (e) motivating shared decision with health professionals, and (f) managing available information.

In this pilot study, the primary investigator created a shame-free environment by using simple words in their primary language. Participants were also encouraged using several health materials such as "Be our Partner" to share in decision making with the health team. Basic health information was provided to participants to enhance health knowledge on insurance, appointment cards, over-the-counter medication, etc. Short video on health insurance was presented in the Arabic language. List of over-the-counter medications were explained in simple words. Participants were encouraged to ask questions or for an interpreter if they have some doubt in understanding over-the- counter medication. Participants were reminded to write the details of the appointment card in their language with the help of an interpreter. They were also provided with resources that can be used to help them access health information in their primary language such as MedlinePlus. Based on the findings of the pilot study, the improvement of functional health literacy was not similar to the improvement of complex health literacy. This finding did not impact the significant improvement ($p < .001$) of health literacy after the program. Complex health literacy (communicative and critical heath literacy) subscale indicated improvement in the pre- and post-program score (PreComQ $M = 3.80$ and

PostComQ *M* = 4.57) (PreCrQ *M* = 3.50 and PostCrQ *M* = 5.96). The total score of posttest indicated an improvement (mean difference between pretest and posttest is -2.9). This improvement in the total score indicates that the three aspects (functional, communicative, and critical) of health literacy should be improved to improve health literacy. This finding also corresponds with the definition of health literacy as both functional and complex skills.

Post-Intervention Discussion

The post-intervention discussion aimed to collect the perception of participants who participated in the program. Participants were invited to a discussion group after the program. Interested participants (*n* = 9) were asked the following set of questions to collect their perception of the program: What do you think about the health information provided today? In your opinion, which aspects of the session were helpful? In your opinion, which aspects of the program were not helpful? Do you have any suggestions to improve future programs? Could you tell me a little more why you think the program was helpful (or not helpful)?

Based on participants' responses in the discussion, participants stated that the information presented and written handout in Arabic in the program were useful. Moreover, they emphasized that there is a necessity for orientation programs on the health care system for new immigrants. Additionally, participants indicated that there is a need for similar educational program to be held in a regular manner. Furthermore, participants suggested a consultation centers for new immigrants for medical issues and concerns.

Participants expressed their need for similar programs to be conducted on a regular basis in immigration agencies. They recounted that presenting the health information in Arabic was very advantageous. Also, the fact that primary investigator spoke in the Arabic language for the entire program helped in creating a sense of comfort and a shame-free environment. They explained that new immigrants are in urgent need of more health information handouts in Arabic when they come to the U.S., stating that while agencies usually provide handouts on employment or visas, nothing is provided on health concerns. Participants suggested orientation programs to prepare new immigrants to navigate the health system in the U.S.

Limitations and Recommendations

The pilot study had some limitations, such as sample size, which was relatively small (n = 30). The sample cannot be representative for all populations. It is recommended that this study be duplicated with a larger sample. Further research is strongly recommended on the effect of communicative and critical health literacy and its correlation between the aspects of health literacy. More research is recommended using a large sample of different populations, especially among immigrants to the United States. This study did not test the effectiveness of similar programs among non-Arab immigrants in the U.S.

Previous health care programs for patients with limited health literacy used readable materials, self-management scenarios and motivated the participants during the program (DeWalt et al., 2006). Several strategies were used to improve functional and communicative health literacy such as using the teach-back method. Health literacy was measured using Short Test of Functional Health Literacy in Adults (S-TOFHLA) which

is only one question "How often do you have someone help you read hospital materials?" In this pilot study, AAHLS Scale was used to measure health literacy before and after the program. It is a new tool that was created to measure the three aspects of health literacy (functional, communicative, and critical) (Chinn & McCarthy, 2013).

Additional research is recommended on health literacy tools to test for health literacy. Although, this pilot study used AAHLS but the small sample cannot be considered as representative. Also, the effectiveness of this tool should be tested using different languages. Semantic translation was used to translate the tool to Arabic language which is considered as a limitation. So, back-to-back translation is highly recommended. This pilot study did not follow up with the participants after the program, so the long-term effect of the program was not detected. Longitudinal study is recommended to observe the effectiveness of health literacy programs over a period of time after the program. Improving communicative and critical health literacy should be followed and evaluated over time. The post-intervention discussion was not representative due to self-selected bias. Recording of the discussion was not conducted due to cultural consideration for this population.

Nursing Implications

There is a clear deficiency in health literacy in the United States, specifically among minorities and immigrants. This deficiency was clarified through different types of research, conferences, and reports (Parker & Ratzan, 2010). Nurses need to claim their place in improving health literacy and creating a shame-free environment. Clear and easy-to-read health information can assist patients to communicate their need/concerns to their health care team (Clancy, 2008).

This study is considered as the first to improve the three aspects (functional, communicative, and critical) of health literacy among Iraqi immigrants. Health literacy of immigrants improved after participating in the educational health program and the posttest scores were statistically significant (t (29) = 4.917, $p < .001$) and higher than the pretest scores. A picture story was used, for example, to explain to participants in simple visual scenarios the importance of communication with health care team. The character in the story was ashamed to ask questions or even ask for an interpreter and left the clinic without meeting his/her concerns, and in confusion with the instruction given. The relatively simple activity was used to emphasize several points in communication with their health care team, such as the importance of providing accurate medical history, asking questions, and the importance of understanding all instruction before leaving the health care facility. This finding is important to nurses in their treatment plan for patients with limited health literacy. Nurses should be aware that providing health information or materials in patients' primary languages is not enough. Nurses should expect patients with limited health literacy to need a shame-free environment and all the support they can have (Egbert & Nanna, 2009).

Individuals with health literacy deficiencies can be frustrated in navigating the health care system and this can aggravate their stress over time. Critical health literacy, which is the higher appraisal of health information, also improved in this study. This improvement was the outcome of several proceeding steps such as providing accessible health information in the patient's primary language, using clear simple words, motivating participants to use available resources, and creating a shame-free

environment. Creating this environment by using the three aspects of health literacy can be addressed in an academic field for nursing students.

AAHLS is a quick scale to use in measuring patients with limited health literacy. Nurses can assess health literacy in seven minutes before providing a treatment plan. This short time in detecting health literacy is very important (Chinn & McCarthy, 2013). If patients have limited health literacy, then nurses can plan for special strategies to use such as a picture story or video. Nurses also can use the teach-back method to detect the patient's understanding before they leave health care facility. Furthermore, nurses should consider the effect of communicative health literacy when they interconnect with patients. Nurses should always motivate patients to express their needs and concerns. Patients with limited health literacy should be reminded of their right to ask and to share in health decision making. They should be also advised to use different health resources available in their native language to be more aware of their health problem.

The problem of health literacy could be explained as limited functional skills of reading and writing. Previous literature and conferences that assessed health literacy indicated that this is a problem for patients in general, even among English-speaking patients (Schillinger & Chen, 2004)). Therefore, it's time to stop considering health literacy as functional skills deficiency only and work should be started toward improvement. The ability and skills of patients determine the quality of health information that should be provided to patients. The patients' skills and level of health literacy even determine the method and the interventions that should be conducted (Clancy et al., 2012). Patients with limited functional skills cannot be expected to communicate their needs to the health care team. Correspondingly, patients who feel

ashamed and stressed cannot advocate for their health, or even the health of their community. Nurses have the obligation to be the first line of defense for medication error and improper emergency use by improving the health literacy of their patients.

Policy Implications

Individuals with limited health literacy are considered at risk for serious health problems and improper use of health facilities. This can cost money, time, staff consuming, and most importantly, a health hazard. Duplication of similar programs in immigration agencies or hospitals could provide solutions for limited health literacy obstacles. Education programs to improve health literacy can improve the health care of Americans and immigrants.

Providing similar programs to improve health literacy of patients is important to minimize these risk factors. Immigrants and minorities are at greater risk not only because of language obstacles but also due to experiences with different health systems. Immigrants to the U.S. with low health literacy cannot navigate the health care system properly which can lead to in improper use of health resources. Unfortunately, immigration agencies are busy providing employment and visa services for immigrants without paying attention to navigation of the health care system. Immigrants need to be oriented to use all resources in the U.S. in a proper way to decrease errors of medications and to improve levels of communication with the health care team.

Conclusion

Health literacy was defined as the ability to obtain, understand, and process health information to reach appropriate health decisions. Functional health literacy is the ability

to read and understand basic health information to complete official documents such as consent forms. The functional skills could be improved by providing health information in the patient's native language. Although functional skills are important to enable patients to read documents in their language, it is not enough. Individuals need to have the communication skills (communicative health literacy) to express their need and concerns. They need to be motivated to ask questions and to make sure that the health information is clear.

Individuals should be their own advocate and should process the available health information (critical health literacy). There are some friendly resources that can provide different health information in several languages such as MedlinePlus. Health literacy is a process that needs to be followed to reach the final goal of improving health literacy. Health care teams should be aware of this process when they design health care programs to improve health literacy. Nurses as advocates for patients have the obligation to teach patients how to advocate for themselves by improving their health literacy (Speros, 2011). Providing health information in the patient's primary language is only one step in solving the problem of low health literacy.

The health literacy program in this pilot was structured to include the three aspects (functional, communicative, and critical) of health literacy. The effect of the program is apparent in the findings and there was an improvement in health literacy total score after the program. The findings of this pilot study are not representative due to small size but it was the first study that addressed the three aspects of health literacy among Iraqi immigrants in the U.S. More research is recommended on the effect of each aspect of health literacy separately. This could be accomplished by conducting three

experimental studies to examine the effect of each aspect. Further research is recommended on the effect of the three aspects of health literacy with a large sample and among different populations.

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APPENDICES

APPENDIX A

HEALTH LITERACY MEASURING TOOLS

Table A.1

CAHPS Item Set for Addressing Health literacy

Item Set #	Item Wording
L.9	In the last 12 months, how often did providers give you all information you need about your health?(Communication with provider)
HL.10	In the last 12 months, how often did providers encourage you to talk about all your health questions or concerns? (Communication with provider)
HL.14	In the last 12 months, how often did providers ask you to describe how you were going to follow these instructions? (Disease self-management**)**
HL. 21	In the last 12 months, how often were these instructions about how to take your medicine easy to understand? (Communication about medicine)
HL.18	In the last 12 months, how often were the results of your blood test, x-ray, or other test easy to understand? (Communication about test result)

Table A.2

List of Health Literacy Measuring tools

Name of the Tool	Description of the Tool
WRAT (Wide Range Achievement Test)	Test with three categories: reading, spelling and arithmetic computation (20-30 min).
SILS (Single Item Literacy Screener)	Single item tool to identify patients who have difficulty in reading health information "How often do you need to have someone help you when you read instrument, pamphlets, or other written materials from your doctor or pharmacy?
TABE (Test of Adult Basic Education)	Test with three sections: reading English, math and questions related to English language.
Slosson Oral Reading	Quick word recognition for children and adults. It assesses oral word recognition, and reading level. It is not comprehensive test and takes 3-5 minutes to administer.
REALM (Rapid Assessment of Adult Literacy in Medicine)	Word recognition tool to measure patient's ability to read medical words. It does not assess comprehension and takes 3 minutes to administer.
NLS (Nutritional Literacy Scale)	Actual nutritional labels with 24 questions to test understanding of nutritional label. First 12 questions are open-ended and last 12 with response options. No time limit for administration.
NVS (Newest Vital Sign)	A nutrition label with 6 questions to quickly assess health literacy. It takes 3 minutes to administer and available in both English and Spanish.

APPENDIX B

NEEDS ASSESSMENT

Table B.1

Scio-demographic Information (Discussion Group # 1)

Age	Gender	Ethnicity	Highest level of Education
35	Female	White/Middle East	High school
40	Female	White/Middle East	Undergraduate degree
46	Female	White/Middle East	Undergraduate degree

Table B.2

Scio-demographic Information (Discussion Group #2)

Age	Gender	Ethnicity	Highest Level of Education
44	Male	White/Middle East	Graduate degree
36	Male	White/Middle East	Undergraduate degree
30	Female	White/Middle East	Undergraduate degree

Table B.3

Scio-demographic Information (Agency Director)

Age	Gender	Ethnicity	Highest Level of Education
40	Female	White/American	Graduate degree

Table B.4

Questions used in both Discussion Groups

Content area	Questions
Communication with healthcare professionals	How often do you have difficulty understanding information provided by health care professionals?
Disease self-management	How often do you have problems learning about medical condition?
Communication on medications	Do you feel confident in following instructions on medications (over-the counter medications)?
Communication on diagnostic tests	How often you have difficulty understating information on medical procedures (x-ray)?
Communication on medical forms	How often do you find medical forms difficult to fill out (consent form)?

Table B.5

Needs Assessment Analysis (Discussion Group #1)

	Never	Sometimes	Most of the time
Appointment card/slip written in a way that is easy to read and understand	1	2	0
Medical forms (e.g. consent forms) difficult to understand and fill out	0	0	3
Difficulty understanding written information regarding health care provided (e. g. x-ray procedure)	0	2	1
Problems in learning about medical condition due to difficulty in understanding written information	0	0	3
Difficulty in filling out medical insurance plan	0	0	3
Difficulty in following the instructions on the label of a medication bottle (e.g. over-the-counter medication)	0	1	2
Need help to read hospital materials	0	0	3
Difficulty in understanding information provided by health care professional on diagnosis or recommended medical procedures	0	2	1
Difficulty in asking health care professional for second consultation referral when you have doubts on health information provided	0	0	3

Table B.6

Needs Assessment Analysis (Discussion Group #2)

	Never	Sometimes	Most of the Time
Appointment card/slip written in a way that is easy to read and understand	0	3	0
Medical forms (e.g. consent forms) difficult to understand and fill out	0	1	2
Difficulty understanding written information regarding health care provided (e. g. x-ray procedure)	0	1	2
Problems in learning about medical condition due to difficulty in understanding written information	0	1	2
Difficulty in filling out medical insurance plan	0	0	3
Difficulty in following the instructions on the label of a medication bottle (e.g. over-the-counter medication)	0	0	3
Need help to read hospital materials	0	1	2
Difficulty in understanding information provided by health care professional on diagnosis or recommended medical procedures	0	0	3
Difficulty in asking health care professional for second consultation referral when you have doubts on health information provided	0	0	3

APPENDIX C

LETTER OF INQUIRY

Health Navigation Program

Info about the program

Name of program or project for which funding is sought: "Health Navigation Assistance"

Total amount of grant request: $40,000

What is the length of time funds are requested? One year

Type of Support

Health education/ Health information/ Outreach

Population Served: Refugees/immigrants economically disadvantaged

If your program targets a specific ethnic or racial group, please identify the group:

Iraqis, Kurds, Syrians and other Middle Eastern immigrants recently arrived in the United States.

Please identify the geographic area mainly served by your program. You may select up to three areas.

Chicago, Near Northern Suburbs, Western Suburbs

Brief Description of the project for which funding is sought: IMAS is requesting funds to launch a health navigation pilot program for Middle Eastern refugees and immigrants in Chicagoland to provide services and establish need. The program would primarily serve Iraqis and Syrians, but also others from the Middle East; services would focus on helping clients navigate the US healthcare system and locate and access care, including insurance programs and other resources for which they may be eligible. The program would also coordinate with relevant organizations, conduct outreach, provide English/Arabic/Kurdish/Assyrian medical translation, accompany clients to doctors' appointments when needed, and provide resources, seminars and workshops on healthcare services and healthy living.

APPENDIX D

AAHLS: ALL ASPECTS OF HEALTH LITERACY SCALE PRETEST

Reference Number:

ALL ASPECTS OF HEALTH LITERACY SCALE (AAHLS)

"QUESTIONS WILL BE READ FOR ALL PARTICPANTS IN ARABIC"
Please tick one response only for each question by placing a tick in the box
F: **functional health literacy**
Com: **Communicative health literacy**
Cr: **Critical health literacy**
Emp**: Empowerment**

FQ1	Do you need someone to help you when you are given information to read by your doctor, nurse or pharmacist (medication, x-ray, pre and post-operative instructions)	□ often	□ sometimes	□ rarely
FQ2	When you need help, can you easily get hold of someone to assist you?	□ often	□ sometimes	□ rarely
FQ3	Do you need help to fill in official documents (consent forms, Medicaid)? Do you need help with over-the-counter medications?	□ often □ often	□ sometimes □ sometimes	□ rarely □ rarely
ComQ1	When you talk to a doctor or nurse, all information about your health should be provided?	□ often	□ sometimes	□ rarely
ComQ2	When you talk to a doctor or nurse, all questions you need should be asked?	□ often	□ sometimes	□ rarely

ComQ3	When you talk to a doctor or nurse, do you have to make sure they explain anything that you do not understand?	□ often	□ sometimes	□ rarely
Cr1	Do you have to find out lots of different information about your health?	□ often	□ sometimes	□ rarely
Cr2	Do you have to think carefully whether health information makes sense in your particular situation?	□ often	□ sometimes	□ rarely
Cr3	Do you have to work out whether information about your health can be trusted?	□ often	□ sometimes	□ rarely
Cr4	Do you think you can question your doctor or nurse's advice based on your own research?	□ yes, definitely	□ maybe/ sometimes	□ not really
Emp1	Do you think there are plenty of ways to have a say in what the government does about health?	□ yes, definitely	□ maybe/ sometimes	□ not really
Emp2	Within the last 12 months have you taken action to do something about a health issue that affects your family or community?	□ yes	□ no	
Emp3	What do you think matters most for everyone's health?	□ a) information and encouragement to lead healthy lifestyles	□ b) good housing, education, decent jobs and good local facilities	

APPENDIX E

AAHLS: ALL ASPECTS OF HEALTH LITERACY SCALE POSTTEST

Reference Number:

Based upon completion of the program, please answer the following questions

FQ1	Do you need someone to help you when you are given information to read by your doctor, nurse or pharmacist (medication, x-ray, pre and post-operative instructions)	□ often	□ sometimes	□ rarely
FQ2	When you need help, can you easily get hold of someone to assist you?	□ often	□ sometimes	□ rarely
FQ3	Do you need help to fill in official documents (consent forms, Medicaid)? Do you need help with over-the-counter medications?	□ often □ often	□ sometimes □ sometimes	□ rarely □ rarely
ComQ1	When you talk to a doctor or nurse, all information about your health should be provided?	□ often	□ sometimes	□ rarely
ComQ2	When you talk to a doctor or nurse, all questions you need should be asked?	□ often	□ sometimes	□ rarely
ComQ3	When you talk to a doctor or nurse, do you have to make sure they explain anything that you do not understand?	□ often	□ sometimes	□ rarely
Cr1	Do you have to find out lots of different information about your health?	□ often	□ sometimes	□ rarely

Cr2	Do you have to think carefully whether health information makes sense in your particular situation?	□ often	□ sometimes	□ rarely
Cr3	Do you have to work out whether information about your health can be trusted?	□ often	□ sometimes	□ rarely
Cr4	Do you think you can question your doctor or nurse's advice based on your own research?	□ yes, definitely	□ maybe/ sometimes	□ not really
Emp1	Do you think there are plenty of ways to have a say in what the government does about health?	□ yes, definitely	□ maybe/ sometimes	□ not really
Emp2	Within the last 12 months have you taken action to do something about a health issue that affects your family or community?	□ yes	□ no	
Emp3	What do you think matters most for everyone's health?	□ a) information and encouragement to lead healthy lifestyles	□ b) good housing, education, decent jobs and good local facilities	

APPENDIX F

ARABIC VERSION OF AAHLS

فحص المستوى للوعي الصحي

الرجاء الاجابه على الاسئله التاليه بوضع دائره على الجواب المناسب:

السؤال الأول: هل تحتاج مساعدة الاخرين عندما تعطى معلومات مكتوبه من الطبيب أو الصيدلاني أو التمريض؟ (اجراءات صور الاشعه،الاجراءات قبل وبعد العمليات، أخذ الأدويه)

دائماً احياناً نادراً

السؤال الثاني: عندما تحتاج المساعده هل من السهل عليك الحصول عليها؟

دائماً احياناً نادراً

السؤال الثالث:

أ) هل تحتاج المساعدة في تعبئه الأوراق الرسميه مثل نص الموافقه على المعالجه أو التامين الصحي؟

دائماً احياناً نادراً

ب) هل تحتاج المساعدة في استخدام الادويه بدون وصفه طبيه في الصيدليات؟

دائماً احياناً نادراً

السؤال الرابع: عندما تتكلم مع الطبيب أو التمريض هل تعتقد انك يجب ان تعطي كل المعلومات عن صحتك؟

دائماً احياناً نادراً

السؤال الخامس: عندما تتكلم مع الطبيب أو التمريض هل تعتقد انك يجب ان تسأل كل الاسئله التي تحتاج ان تسألها لهم؟

دائماً احياناً نادراً

السؤال السادس: عندما تتكلم مع الطبيب أو التمريض هل تقوم بالتاكد من انهم قامو بتوضيح كل المعلومات التي تحتاجها؟

دائماً احياناً نادراً

السؤال السابع: هل تعتقد انك يجب ان تجمع معلومات مختلفه تُهمُ صحتك؟

دائماً احياناً نادراً

السؤال الثامن: هل تعتقد انك يجب ان تفكر بعمق اذا كانت المعلومات المعطاه لك منطقيه ام لا؟

دائماً احياناً نادراً

السؤال التاسع: هل تعتقد انك يجب أنْ تبحث للتحقق أنّ هذه المعلومات عن صحتك موثوق بها؟

دائماً احياناً نادراً

السؤال العاشر: هل تعتقد انه يمكنك الشك بنصيحه الطبيب أو التمريض بناءً على بحثك الخاص للمعلومات؟

نعم بالتاكيد ربما احيانا لا اعتقد

السؤال الحادي عشر: هل تعتقد أنّ هناك طرق متعدده لابداء الرأي في الاجراءات العامة عن الصحه؟

نعم بالتاكيد ربما احيانا لا اعتقد

السؤال الثاني عشر: خلال السنه السابقه هل قمت باتخاذ اي موقف من اجل صحة عائلتك أو صحة المجتمع؟

نعم بالتاكيد ربما احيانا لا اعتقد

السؤال الثالث عشر: ماالذي تعتقد انه الاهم حتى ينعم الجميع بالصحه؟

أ- توفير المعلومات والتشجيع اللاتي تساعد على إقامة نمط الحياة الصحيه.

ب- التعليم، البيت، الوظيفه الجيده، المراكز المحليه الجيده.

شكراً لتعاونكم

APPENDIX G

LETTER OF AUTHORIZATION

School of Nursing
The University of Akron
Akron, OH
December 16, 2014
To whom it may concern,
Jilan Hatamleh approached Islamic Oasis organization to distribute a flyer for her PhD research. Islamic Oasis acknowledges allowing Mrs. Hatamleh to distribute the flyer through our advertisement tools. We will contact Mrs. Hatamleh to report interested individuals.

Best Regards,
Islamic Oasis Director

APPENDIX H

IRB APPROVAL FORM

Office of Research Administration
Akron, OH 44325-2102

NOTICE OF APPROVAL

February 2, 2015

Jilan Hatamleh
485 Aberdeen Street
Hoffman Estates, Illinois 60169

From: Sharon McWhorter, IRB Administrator

Re: IRB Number 20150208 "*Health Literacy of Iraqi Immigrants Adults Mixed Methods: Pilot Study*"

Thank you for submitting your IRB Application for Review of Research Involving Human Subjects for the referenced project. Your application was approved on February 26, 2015. Your protocol represents minimal risk to subjects and matches the following federal category for exemption:

☐ **Exemption 1** – Research conducted in established or commonly accepted educational settings, involving normal educational practices.

☒ **Exemption 2** – Research involving the use of educational tests, survey procedures, interview procedures, or observation of public behavior.

☐ **Exemption 3** - Research involving the use of educational tests, survey procedures, interview procedures, or observation of public behavior not exempt under category 2, but subjects are elected or appointed public officials or candidates for public office.

☐ **Exemption 4** – Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens.

☐ **Exemption 5** – Research and demonstration projects conducted by or subject to the approval of department or agency heads, and which are designed to study, evaluate, or otherwise examine public programs or benefits.

☐ **Exemption 6** – Taste and food quality evaluation and consumer acceptance studies.

Annual continuation applications are not required for exempt projects. If you make changes to the study's design or procedures that increase the risk to subjects or include activities that do not fall within the approved exemption category, please contact me to discuss whether or not a new application must be submitted. Any such changes or modifications must be reviewed and approved by the IRB prior to implementation.

Please retain this letter for your files. This office will hold your exemption application for a period of three years from the approval date. If you wish to continue this protocol beyond this period, you will need to submit another Exemption Request. If the research is being conducted for a master's thesis or doctoral dissertation, the student must file a copy of this letter with the thesis or dissertation.

☒ Approved consent form/s enclosed

Cc: M. Kendra - Advisor
Cc: Valerie Callanan – IRB Chair

The University of Akron

Consent Form

Health Literacy of Iraqi Immigrants Adults

Mixed Methods: Pilot Study

You are invited to participate in a research study conducted by Jilan Hatamleh and supervised by Dr. Mary Agnes Kendra in the School of Nursing at The University of Akron. The purpose of this study is to examine and describe the effect of an educational program (3 hours) on health literacy of Iraqi immigrants in USA. You were selected as a possible participant in this study because you meet inclusion criteria: (a) 18 years of age and older, (b) use English as a second language and (c) were born in Iraqi and have lived in the USA for at least five months. If you decide to participate, you will be asked to answer some questions about yourself such as: age, gender, level of education and type of education. You will be asked to complete a 14- item set test which takes only 7- minutes to administer and it will be presented to you in Arabic. Health information will then be presented using various methods such as: printed materials, video, and discussion. All health information will be presented to you in Arabic language. There are no foreseeable risks to you. The possible benefit is that you may learn detailed information about health.

At the end of the program on health literacy, you will be asked to complete the same measuring tool (All Aspects of Health Literacy Scale) (AAHLS) and interested participants will be invited for one focus group. You will be asked a set of questions on the effectiveness of the program. All information gathered will be confidential and will be used only for the purpose of this research study without revealing participants identity. This information will be kept in a

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Date 3/26/15
The University of Akron

locked cabinet in the primary investigator's office for three years. The program and the printed information are free for all participants. You will be compensated for transportation fees ($10 gift card). If you have any questions about this study, please contact the primary investigator (phone number: 773-409-4597 or adviser, Dr. Mary Agnes Kendra at The University of Akron (phone number: 330-972-7559) .This project has been reviewed and approved by The University of Akron Institutional Review Board. If you have any questions about your rights as a research participant, you may call the IRB at (330) 972-7666.

Your Signature below indicates that you read the consent form and you agree to participate in this study.

I have read the information provided above and all of my questions have been answered. I voluntarily agree to participate in this study. I will receive a copy of this consent form for my information.

Signature of participant **Signature of Investigator**

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Date 2/26/15
The University of Akron

School of Nursing
Mary Gladwin Hall
Akron, OH 44325-3701
www.uakron.edu/nursing

نموذج الموافقه على الدراسه

الوعي الصحي عند العراقيين المهاجرين: دراسة عملية ونظرية

انك مدعو للمشاركه في الدراسه التي سوف تقوم بها جيلان حتامله باشراف الدكتوره ماري كندرا من جامعة AKRON كلية التمريض. اننا نهدف من هذه الدراسه اختبار فعالية البرنامج التعليمي للتوعيه الصحيه للعراقيين المهاجرين الذين سوف ينضمون للبرنامج (٣ساعات). لقد تم اختيارك لتشارك في هذه الدراسه لعدة اسباب منها : العمر ١٨سنه فاكثر،استخدام اللغه الانجليزيه كلغه ثانيه،الاقامه في امريكا على الاقل ٥ شهور

سوف نقوم بقياس مستوى الوعي الصحي باستخدام فحص يدعى فحص الوعي الصحي للبالغين **AAHLS** ،هذا الفحص عباره عن مجموعه من الاسئله لقياس الوعي الصحي. الفحص يستغرق ٧ دقائق وباللغه العربيه.

المعلومات الطبيه سوف تقدم لك باستخدام وسائل متعدده مثل المواد المكتوبه، الفيديو، محادثه واسئله تفاعليه باللغه العربيه. ان هدف هذا البرنامج تقديم معلومات طبيه باللغه العربيه بدون تعرضكم لاي خطر او تكلفه ماديه. في نهاية البرنامج سوف نقيس المستوى الصحي باستخدام نفس الاسئله السابقه وسوف يستدعيك الباحث للانضمام لمجموعه صغيره للتحدث عن فاعلية البرنامج.المعلومات التي سوف يتم جمعها ستحفظ بسرية وخصوصية عالية بدون الكشف عن شخصية المشترك، وسوف تستخدم لأغراض هذه الدراسه فقط. هذه المعلومات سوف يتم حفظها مغلقه في مكتب الباحث الرئيسي لمدة ثلاث سنوات.

The University of Akron

APPROVED
IRB
Date 2/24/15
The University of Akron

البرنامج وجميع المعلومات المعطاة خلال هذا البرنامج سوف تكون مجانية. وسوف يتم تعويظك مبلغ 10$ كبديل لتكاليف المواصلات للحظور الى البرنامج. اذا كان لديك اي اسئله اواستفسار يمكنك التواصل مع الباحث الرئيسي على الرقم ٧٧٣٤٠٩٤٥٩٧ او بالمرشد الدكتورة ماري على الرقم ٣٣٠٩٧٢٧٥٥٩. هذه الدراسه تم مراجعتها والموافقه عليها من قبل هيئة ادارة الجامعة. يمكنك التوجه باي اسئله تتعلق بحقوقك كمشارك في الدراسة لهيئة حماية حقوق المشاركين بالدراسات على الرقم ٣٣٠٩٧٢٧٦٦٦.

موافقتك و توقيعك على الانضمام لن يمنعك من الانسحاب لاحقا اذا رغبت بذلك ولن تقع تحت اى مسئوليه من اى نوع

الرجاء التوقيع لاشاره لموافقتك على الانضمام للبرنامج

لقد اطّلعت على المعلومات المعطاه سابقا وتم الاجابه على كل اسئلتى.انا اوافق على الانضمام بشكل تطوعى وسوف يتم تزويدي بنسخه من هذه الموافقة.

التوقيع **التاريخ** **توقيع الباحث : جيلان حتامله (جامعة Akron)**

مرشحة للدكتوراه في التمريض

School of Nursing
Mary Gladwin Hall
Akron, OH 44325-3701
www.uakron.edu/nursing

APPENDIX I

DEMOGRAPHIC DATA QUESTIONNAIRE

This Questionnaire will be written in Arabic and English Language.

Date: _____

Date of Birth: / /

Gender: M _____ F _____

Marital Status: Single _____ Married _____ Divorced _____Widow _____

Level of Education: high school _____

College degree _____

College graduate _____

Medical Knowledge/Education: No _____ if yes, do you have a degree in:

Nursing _____

Pharmacy _____

Others, _____

The year migrated to US: _____

APPENDIX J

ARABIC VERSION OF DEMOGRAPHIC DATA QUESTIONNAIRE

استبيان المعلومات الذاتيه

التاريخ .....

تاريخ الميلاد: .....

الجنس: ذكر.....انثى.....

الحاله الاجتماعيه: اعزب.....متزوج.....مطلّق.....ارمل.....

المستوى العلمي: ثانوي.....

دراسه جامعيه.....

دراسات عليا.....

مستوى الالمام العلمي بالامور الطبيه:لا يوجد..... نعم يوجد. هل لديك شهاده علميه في:

التمريض .....

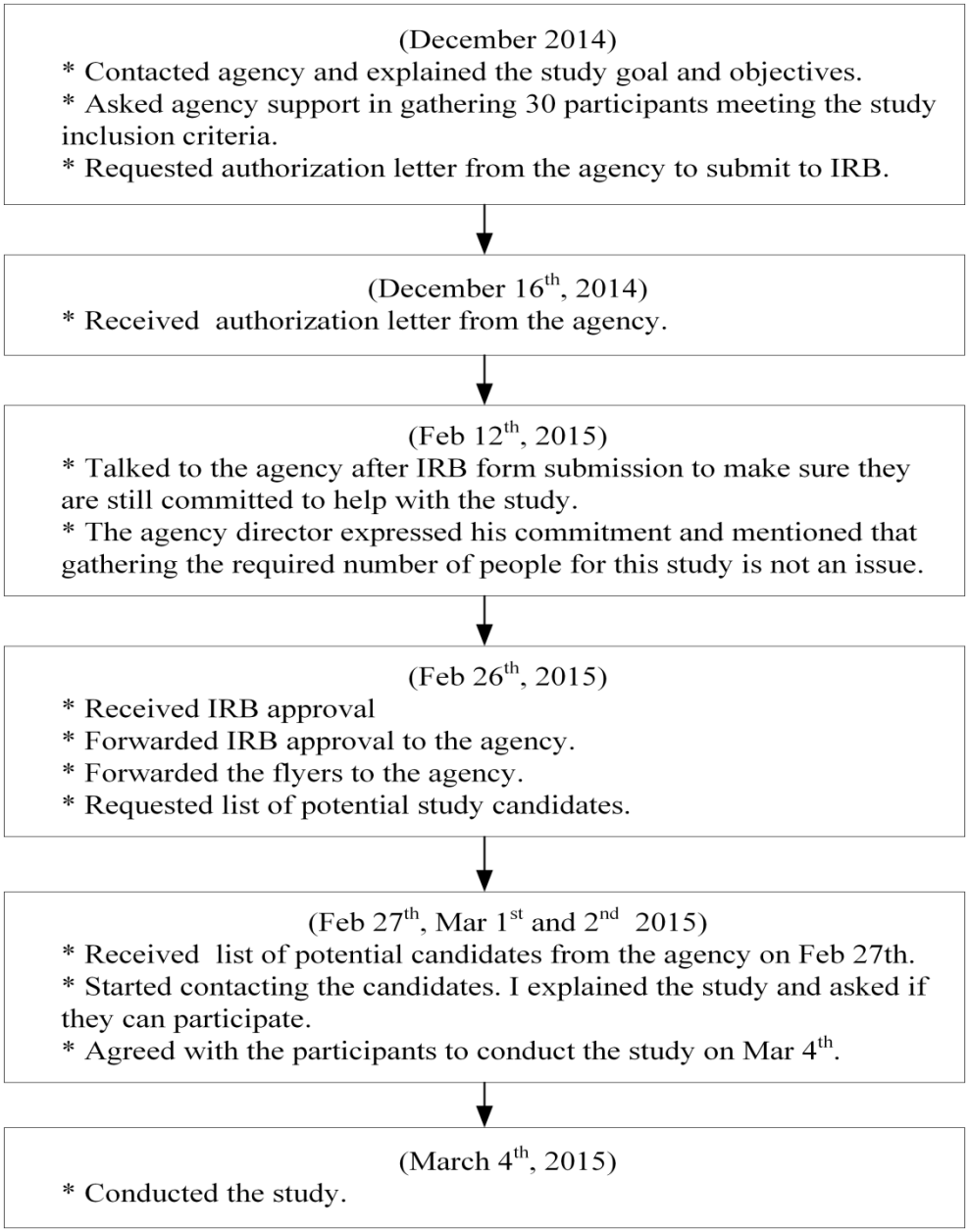
الصيدله.....

غير ذلك.....

السنه التى قدمت فيها للولايات المتحده الامريكيه:.....

APPENDIX K

DATA COLLECTION FLOWCHART



APPENDIX L

CONSENT FORM

Health Literacy of Iraqi Immigrants Adults

Pilot Study

You are invited to participate in a research study conducted by Jilan Hatamleh and supervised by Dr. Mary Agnes Kendra in the School of Nursing at The University of Akron. The purpose of this pilot study was to examine the effect of an educational program on the health literacy of Iraqi immigrants in the United States. You were selected as a possible participant in this study because you meet inclusion criteria: (a) 18 years of age and older, (b) use English as a second language and (c) were born in Iraqi and have lived in the U.S. for at least five months. If you decide to participate, you will be asked to answer some questions about yourself such as: age, gender, level of education and type of education. You will be asked to complete a 14- item set test which takes only 7- minutes to administer and it will be presented to you in Arabic. Health information will then be presented using various methods such as: printed materials, video, and discussion. All health information will be presented to you in Arabic language. There are no foreseeable risks to you. The possible benefit is that you may learn detailed information about health.

Following the program on health literacy, you will be asked to complete the same measuring tool (All Aspects of Health Literacy Scale) (AAHLS) and interested participants will be invited for one discussion group. You will be asked a set of questions

on the effectiveness of the program. All information gathered will be confidential and will be used only for the purpose of this research study without revealing participants identity. This information will be kept in a locked cabinet in the primary investigator's office for three years. The program and the printed information are free for all participants. You will be compensated for transportation fees ($10 gift card). If you have any questions about this study, please contact the primary investigator (phone number: 773-409-4597 or adviser, Dr. Mary Agnes Kendra at The University of Akron (phone number: 330-972-7559) .This project has been reviewed and approved by The University of Akron Institutional Review Board. If you have any questions about your rights as a research participant, you may call the IRB at (330) 972-7666.

Your Signature below indicates that you read the consent form and you agree to participate in this study.

I have read the information provided above and all of my questions have been answered. I voluntarily agree to participate in this study. I will receive a copy of this consent form for my information.

Signature of participant **Signature of Investigator**

School of Nursing
Mary Gladwin Hall
Akron, OH 44325-3701
www.uakron.edu/nursing

APPENDIX M

ARABIC VERSION OF CONSENT FORM

نموذج الموافقه على الدراسه

الوعي الصحي عند العراقيين المهاجرين: دراسة عملية ونظرية

انك مدعو للمشاركه في الدراسه التي سوف تقوم بها جيلان حتامله باشراف الدكتوره ماري كندرا من جامعة AKRON كلية التمريض. اننا نهدف من هذه الدراسه اختبار فعالية البرنامج التعليمي للتوعيه الصحيه للعراقيين المهاجرين الذين سوف ينضمون للبرنامج (٣ساعات). لقد تم اختيارك لتشارك في هذه الدراسه لعدة اسباب منها : العمر ١٨سنه فاكثر،استخدام اللغه الانجليزيه كلغه ثانيه،الاقامه في امريكا على الاقل ٥ شهور

سوف نقوم بقياس مستوى الوعي الصحي باستخدام فحص يدعى فحص الوعي الصحي للبالغين **AAHLS** ،هذا الفحص عباره عن مجموعه من الاسئله لقياس الوعي الصحي. الفحص يستغرق ٧ دقائق وباللغه العربيه.

المعلومات الطبيه سوف تقدم لك باستخدام وسائل متعدده مثل المواد المكتوبه، الفيديو، محادثه واسئله تفاعليه باللغه العربيه. ان هدف هذا البرنامج تقديم معلومات طبيه باللغه العربيه بدون تعرضكم لاي خطر او تكلفه ماديه. في نهاية البرنامج سوف نقيس المستوى الصحي باستخدام نفس الاسئله السابقه وسوف يستدعيك الباحث للانضمام لمجموعه صغيره للتحدث عن فاعلية البرنامج.المعلومات التي سوف يتم جمعها ستحفظ بسرية وخصوصية عالية بدون الكشف عن شخصية المشترك، وسوف تستخدم لأغراض هذه الدراسه فقط. هذه المعلومات سوف يتم حفظها مغلقه في مكتب الباحث الرئيسي لمدة ثلاث سنوات.

البرنامج وجميع المعلومات المعطاة خلال هذا البرنامج سوف تكون مجانية. وسوف يتم تعويظك مبلغ 10$ كبديل لتكاليف المواصلات للحظور الى البرنامج. اذا كان لديك اي اسئله اواستفسار يمكنك التواصل مع الباحث الرئيسي على الرقم ٧٧٣٤٠٩٤٥٩٧ او بالمرشد الدكتورة ماري على الرقم ٣٣٠٩٧٢٧٥٥٩. هذه الدراسه تم مراجعتها والموافقه عليها من قبل هيئة ادارة الجامعة. يمكنك التوجه باي اسئله تتعلق بحقوقك كمشارك في الدراسة لهيئة حماية

حقوق المشاركين بالدراسات على الرقم ٣٣٠٩٧٢٧٦٦٦.

موافقتك و توقيعك على الانضمام لن يمنعك من الانسحاب لاحقا اذا رغبت بذلك ولن تقع تحت اي مسئوليه من اي نوع

الرجاء التوقيع لاشاره لموافقتك على الانضمام للبرنامج

لقد اطّلعت على المعلومات المعطاه سابقا وتم الاجابه على كل اسئلتي.انا اوافق على الانضمام بشكل تطوعي وسوف يتم تزويدي بنسخه من هذه الموافقة.

التوقيع **التاريخ** **توقيع الباحث : جيلان حتامله (جامعة Akron)**

مرشحة للدكتوراه في التمريض

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Mary Gladwin Hall
Akron, OH 44325-3701
www.uakron.edu/nursing

APPENDIX N

ADULT EDUCATION HEALTH CURRICULUM

Adult Educator: **Program: Health Literacy**

College: **Date:**

Health Literacy

Adults (participants) learning outcome: Increased knowledge in:

- Medical terms.
- Health resources accessibility.
- Patient's rights.
- Communication with health care provider.
- Navigation of the health care system.
- Appointment card.
- Medicaid.

Curriculum learning Outcome:

This program is designed to improve both functional and complex literacy skills for Iraqi immigrants in US. The program consists of 5 learning modules

Curriculum Objectives:

- Create shame-free environment by using easy to read documents, simple words, visual aids, avoid jargons and continues motivation.
- Develop and present easy to read health information in primary language.

- Expand health knowledge and medical terms familiarity.
- Clarify different ways to access health resources.
- Motivate participants to communicate with health care team.
- Reinforce participants to be engaged in their health decisions.

Materials

- National Network of Libraries of Medicine (NN/LM)
- National Institutes of Health (Medline Plus /NIH)
- Medicaid

  http://www.acf.hhs.gov/programs/orr/healthhttp://www.youtube.com/watch?v=LZ48ujCOb-Y&list=PLypiJrod4DeiTGk3xfmD-XkkX6dO9W-fj&index=2
- "Home Care Instructions after Surgery".

  https://www.healthinfotranslations.org/pdfDocs/HomeCare_ARA.pdf
- "Echocardiogram".

  https://www.healthinfotranslations.org/pdfDocs/Echocardiogram_ARA.pdf
- "X-Ray Procedure".

  https://www.healthinfotranslations.org/pdfDocs/HavingXray_AR.pdf
- "Generic/Brand Medicine"

  https://www.healthinfotranslations.org/pdfDocs/GenericBrandMedicines_ar.pdf
- "Taking Med Safety"

  https://www.healthinfotranslations.org/pdfDocs/TakingMedsSafely_ARA.pdf
- "Using Medicine Spoon Dropper"

  https://www.healthinfotranslations.org/pdfDocs/UsingMedicineSpoonDropper_ar.pdf

- “Initial Health Assessment” in Arabic http://www.rhin.org/documents/Initial_Refugee_Health_Assessment_Intake_Form_Arabic.pdf
- “Better Health Begins with You” http://www.rhin.org/documents/Better_Health_Begins_With_You-Arabic.pdf
- “Healthy living in the U.S.”
- http://www.uscrirefugees.org/2010Website/5_Resources/5_1_For_Refugees_Immigrants/5_1_1_Health/5_1_1_1_Healthy_Living_Toolkit/5_1_1_1_4_Health_Care/Arabic_ER.pdf
- Picture Stories for Adult ESL Health Literacy (http://www.cal.org/caela/esl_resources/Health/healthindex.html).

Key Vocabulary

- Over -the – counter (OTC) Medications.
- Prescribed Medications
- Medicaid.
- X-ray
- Appointment Card.
- Patients’ bill of rights.
- Consent forms.
- Emergency contact
- Medication organizer.

Program Procedures

Introduction: Explaining the objectives of the session and provide chance for any question. Participants will be reminded that they can withdraw from study any time they want. Health literacy will be measured by the Test of the three Aspects (functional, communicative and critical) of Health Literacy Scale (AAHLS). AAHLS is a 4-item functional literacy set (The ability to read and follow instructions of medical forms, medications, (Over -the – counter (OTC), prior and post medical procedures), 3-item communicative literacy set (The ability to communicate basic health information with health care team) and 7-item critical literacy set (The ability to process basic health information and to navigate the health care system in US). The test will take 7- minutes.

Instructions and Activities:

Module 1 (Communication with Health Care Providers) Activity:

Picture story of a doctor appointment will be presented in Arabic language to participants followed by set of questions and verbal discussion.

Module 2(Self- Management of Diseases) Activity:

Practice written materials in Arabic "Initial Health Assessment, Better Health Begins with You, Healthy living in the U.S.", "Initial Health Assessment" and "Healthy living in the U.S."

Module 3: Medications

A package of common over-the-counter medication (Tylenol, Motrin, Zyrtec…etc.) will be used for demonstration in program. Practice written materials in Arabic (over-the-counter medication handout).

Module 4: Diagnostic Tests

Practice written materials in Arabic “Home Care Instructions after Surgery, Echocardiogram and X-Ray procedure”.

Module 5: Medical Forms

Present audio-visual “Refugees and the Affordable Care Act-Arabic.”

Assessment

- Health literacy will be measured again using the Test of the three Aspects of Health Literacy Scale (AAHLS).
- Teach-back method to check participants understanding “Can you explain what we discussed?”
- Interactive discussion

Time

- (3 hours)

APPENDIX O

BRIEF DESCRIPTION OF INFORMATION IN THE PROGRAM

This information will be explained by the primary investigator in Arabic using several resources such as: National Network of Libraries of Medicine (NN/LM) and National Institutes of Health (Medline Plus /NIH).

Participants will be reminded that they can withdraw from study any time they want.

Activities/Interventions
Explaining study purpose and provide chance for any question
Pain relief medication: Tylenol, Advil. Used to reduce fever and pain. Dose and direction will be read and explained in both languages.
Cough and Cold Medication: Robitussin, Mucinex and Guaifenasin. Used to help stop coughing. Dose and direction will be read and explained.
Coughing medication instructions for kids and accompanied instructions.
Practice written materials (over-the-counter medication handout).
Side effects of medication will be explained in details.
Allergy and Cold Medication: Antihistamine drugs (Benadryl) (Claritin) and Decongestant drugs. Used to reduce itchy runny nose, congestions and Headache. Dose and direction will be read and explained.
Side effect of medication will be explained
Over Counter multivitamins: Centrum, Vitamin A, chewable, FDA approved vitamins. Used as nutrient and supplement. Dose and direction will be read and explained in both languages.

	Review required dose for kids and discuss different kinds of other vitamins available over counter.
	Teach back" method: Ask participants to explain what they learned in the program.
	Break with traditional Iraqi snack
	Encourage participants to express any difficulties they faced during program
	Session review. Ask participants to rephrase information provided.
	Picture story of a doctor appointment will be presented in Arabic language
	Discussion on content of the story
	Visual materials: Detailed video on the health system in US.
	Audio visual materials (Refugees and Affordable Care). This will include discussion after presenting the materials.
	Illustration to clarify main concepts: Pictures and images will be used to explain the health system, filling prescription, transportation…etc.
	Continue with graphs on right way to make physicians appointment.
	Motivation: Encourage patients to ask questions and to repeat material in their own words.
	Reinforce the patients to ask what is main diagnosis, what to do and why.
	You can do this" : explaining and reading patients' bill of rights
	Explain what to do to file complains
	Interactive process with participants: open dialogue with participants regarding their needs when faced with the health system
	Allow participants to express their concerns and problems
	Repetition and rephrase of materials

	Practice written materials in Arabic (Home Care Instructions after Surgery, Echocardiogram and X-Ray procedure).
	Speak slowly to increase patient's level of understating. Explain rights to ask for professional interpreters.
	Encourage participants to express any difficulties they faced during program.
	Breaks down complex instructions into small simple information to increase sense of success for patients.
	Practice written materials in Arabic (Initial Health Assessment, Better Health Begins with You and Healthy living in the U.S.).
	"**You are capable of succeeding**": Encourage participants to be engaged in their health decisions.
	Explain that it is okay to do mistakes when performing new task. Continue with presenting information(signs and symptoms of common diseases)
	Organize the information logically: Encourage participants to always organize their health papers and emergency contact.
	Motivate participants to memorize and write name of their primary physician, their medication list and their pharmacy.
	Review. Ask participants to rephrase information provided.

APPENDIX P

FACILITATION SCHEDULE OF THE PROGRAM

Time(Minutes)	Activity	Description	AAHLS	Resources required
01:00-01:15	Orientation	Presentation of study objectives. Allow participants to address any question. They will be reminded of their rights as participants in the study.		
01:15-01:35 pm	Discussion	Over -the – counter (OTC) and prescribed Medications: dose, frequency, date of expiration, date of issue and refill. A package of common over-the-counter medication. Practice written materials.	Module 3	National Network of Libraries of Medicine (NN/LM) and National Institutes of Health (Medline Plus /NIH)
01:35-01:55pm	Audio visual materials	video on healthcare system in US (Medicaid)	Module 5	National Network of Libraries of Medicine (NN/LM) and National Institutes of Health

				(Medline Plus /NIH)
01:55-02:15 pm	Illustration to clarify main concepts	Pictures and images will be used to explain healthcare system, scheduling appointments and Medical procedures: X-ray, Echocardiogram …etc.	Module 4	National Network of Libraries of Medicine (NN/LM) and National Institutes of Health (Medline Plus /NIH)
02:15-02:35pm	Session Review "Teach back"	Review major points. Ask participants to explain what they learned in session.		Review and prepare to end session.
02:35-02:55 pm	Picture story of a doctor appointment	Reinforce the participants to ask questions on their diagnosis, medical procedures…etc. Explaining /reading and patients' bill of rights, consent forms...etc.	Module 1	Picture Stories for Adult ESL Health Literacy.
02:55-03:15 pm	Discussion	Interactive discussion. Breaks down complex information. Allow participants to express their concerns/ problems in healthcare system.		National Network of Libraries of Medicine (NN/LM) and National Institutes of Health (Medline Plus /NIH)

03:15-03:35 pm	Discussion	Encourage participants to be engaged in their health decisions. Encourage participants to organize their health papers and emergency contact. Practice written materials (Initial Health Assessment, Better Health Begins with You and Healthy living in the U.S.).	Module 2	National Network of Libraries of Medicine (NN/LM) and National Institutes of Health (Medline Plus /NIH)
03:35-04:00	Review "Teach back"	Review major points. Ask participants to explain what they learned in session.		Review and prepare to end the program.

APPENDIX Q

CURRICULUM MODULES

Module 1: Communication with Health Care Providers

Goals/Objectives. This module introduced the strategies and activities to improve the skills of communication with health care team. At the end of this module, participants are able to recognize that:

1. Patients have the right to ask for professional interpreters.
2. It is patient's responsibility to ask for clarification when in doubt.
3. Patients have the right to ask for clarification of instructions provided and treatment plan in primary language.
4. Patients have the right to ask health team to avoid medical terminology, slow down and to use short sentences.

Strategies. List of strategies used in module one.

1. Break down information.
2. Clear, simple words that is culturally and linguistically appropriate.
3. Encourage participants to ask questions.
4. Teach-back method to check participants understanding.

Learning Activities. Picture story of a doctor appointment will be presented in Arabic language to participants followed by set of questions and verbal discussion.

1. Has this ever happened to you?

2. What do you think the man in the story should do? Why?
3. What do you think the doctor should do? Why?

Resources. List of resources in module one.

1. Picture Stories for Adult ESL Health Literacy (http://www.cal.org/caela/esl_resources/Health/healthindex.html).
2. Be Our Partner for Safe Health Care https://www.healthinfotranslations.org/pdfDocs/BeOurPartner_Arabic.pdf

Module 2: Self- Management of Diseases

Goals/Objectives. This module introduced the strategies and activities to improve the skills of self-management of diseases. At the end of this module, participants are able to recognize:

1. Available health information resources in Arabic language (MedlinePlus).
2. Healthy living in the U.S. recommendations.
3. Initial health assessment.
4. Regular appointment with physicians.

Learning Strategies. List of strategies in module two.

1. Verbal discussion.
2. Slow down.
3. Teach-back method to check their understanding.
4. Break down complex information.
5. Content will be narrowed down to what participants need to know only.

6. Avoid medical terminology and focus on the instructions for key behavior participants need to learn.
7. Define important medical words such as: (PRN, GI)

Learning Activities. List of learning activities in module two.

1. Reinforce knowledge and access to medical resources in Arabic.
2. Emphasize follow-through for scheduled and referral appointment.
3. Monitor for health and regular physical exam.
4. Practice written materials in Arabic (Initial Health Assessment, Better Health Begins with You and Healthy living in the U.S.).

Resources. List of resource in module two.

1. "Initial Health Assessment" in Arabic http://www.rhin.org/documents/Initial_Refugee_Health_Assessment_Intake_Form_Arabic.pdf
2. "Better Health Begins with You" http://www.rhin.org/documents/Better_Health_Begins_With_You-Arabic.pdf
3. "Healthy living in the U.S." http://www.uscrirefugees.org/2010Website/5_Resources/5_1_For_Refugees_Immigrants/5_1_1_Health/5_1_1_1_Healthy_Living_Toolkit/5_1_1_1_4_Health_Care/Arabic_ER.pdf
4. Appointment Reminder https://www.healthinfotranslations.org/pdfDocs/AppointmentReminder_Ara.pdf

Module 3: Medications

Goals/Objectives. This module introduced the strategies and activities to improve knowledge of over -the-counter medications and direction (dose, frequency, precautions). At the end of this module, participants are able to recognize:

1. Over-the-counter medication for fever, cough, cold, allergy, etc.
2. Directions/instructions listed on medication bottle.
3. The danger of medication errors.

Learning Strategies. List of learning activities in module three.

1. Read instructions of some medications and circle important information.
2. Organize information to present 2 or 3 concepts a time.
3. Review over-the-counter medication in Arabic language.
4. Teach-back method "Can you explain what we discussed?"
5. Ask doctors to explain medication instructions using professional interpreters.
6. Motivate participants to inform physicians if they have any allergies from medications or food.
7. Advise participants to check their medications and to write instructions in their primary language before they leave the pharmacy and during office visit with health care team.

Learning Activities. List of learning activities in module three.

1. A package of common over-the-counter medication (Tylenol, Motrin, Zyrtec…etc.) will be used for demonstration in program.
2. Practice written materials in Arabic (over-the-counter medication handout).

Resources. List of resources in module three.

1. “Generic/Brand Medicine” https://www.healthinfotranslations.org/pdfDocs/GenericBrandMedicines_ar.pdf
2. “Taking Med Safety” https://www.healthinfotranslations.org/pdfDocs/TakingMedsSafely_ARA.pdf
3. “Using Medicine Spoon Dropper” https://www.healthinfotranslations.org/pdfDocs/UsingMedicineSpoonDropper_ar.pdf

Module 4: Diagnostic Tests

Goals/Objectives. This module introduced the strategies and activities to improve knowledge of diagnostic tests. At the end of this module, participants are able to recognize important instructions for:

1. Pre and Post-operative.
2. X-ray Procedure.
3. Echocardiogram.

Learning Strategies. List of learning strategies in module four.

1. Motivate participants to speak up and ask questions.
2. Explain patient’s rights and responsibility to share in decision making.
3. Advise participants to prepare list of questions written before meeting with health care team.
4. Instruct participants to write instructions in their primary language.
5. Teach-back method to check participants understanding.

Learning Activates. List of learning activities in module four.

1. Practice written materials in Arabic (Home Care Instructions after Surgery, Echocardiogram and X-Ray procedure).

Resources. List of resources in module four.

1. "Home Care Instructions after Surgery". https://www.healthinfotranslations.org/pdfDocs/HomeCare_ARA.pdf
2. "Echocardiogram". https://www.healthinfotranslations.org/pdfDocs/Echocardiogram_ARA.pdf
3. "X-Ray Procedure". https://www.healthinfotranslations.org/pdfDocs/HavingXray_AR.pdf

Module 5: Medical Forms

Goals/Objectives. This module introduced the strategies and activities to increase awareness to medical forms (consent forms) and insurance (Medicaid). At the end of this module, participants are able to recognize that:

1. Patients have the right to ask for consent forms to be written and explained in primary language.
2. Patients have the right to ask for explanation of insurance policy in primary language.
3. Patients have the right to ask for professional interpreters to explain written documents in primary language.

Learning Strategies. List of learning activities in module five.

1. Encourage participants to ask health care team to explain medical forms in details in their primary language.
2. Advise participants not to sign on any form if they are in doubt.

Learning Activities. List of learning activities.

1. Present audio-visual “Refugees and the Affordable Care Act-Arabic.”
2. Oral discussion regarding health insurance.

Resources. List of resources in module five.

1. http://www.acf.hhs.gov/programs/orr/health
2. http://youtu.be/LZ48ujCOb-Y

APPENDIX R

MISSING DATA SCREENING

Frequency Tables

		Pre FQ1	Pre FQ2	Pre FQ3	Pre FQ4	Pre FQ	Pre ComQ1	Pre ComQ2
N	Valid	30	30	30	29	30	30	30
	Missing	0	0	0	1	0	0	0
Minimum		1	0	0	0	3	0	0
Maximum		2	2	2	2	8	2	2

		Pre ComQ3	Pre ComQ	Pre CrQ1	Pre CrQ2	Pre CrQ3	Pre CrQ4	Pre CrQ
N	Valid	30	30	30	30	30	30	30
	Missing	0	0	0	0	0	0	0
Minimum		0	1	0	0	0	0	1
Maximum		2	6	2	2	2	2	7

		PreEmpQ1	PreEmpQ2	PreEmpQ3	PreTotal	PostFQ1	PostFQ2
N	Valid	30	30	30	30	30	30
	Missing	0	0	0	0	0	0

Minimum		0	0	0	7	0	0
Maximum		2	1	1	19	2	2

		Post FQ3	Post FQ4	Post FQ	Post ComQ1	Post ComQ2	Post ComQ3
N	Valid	30	30	30	30	30	30
	Missing	0	0	0	0	0	0
Minimum		0	0	2	0	0	0
Maximum		2	2	6	2	2	2

		PostComQ	PostCrQ1	PostCrQ2	PostCrQ3	PostCrQ4	PostCrQ
N	Valid	30	30	30	29	30	30
	Missing	0	0	0	1	0	0
Minimum		0	1	0	1	0	3
Maximum		6	2	2	2	2	8

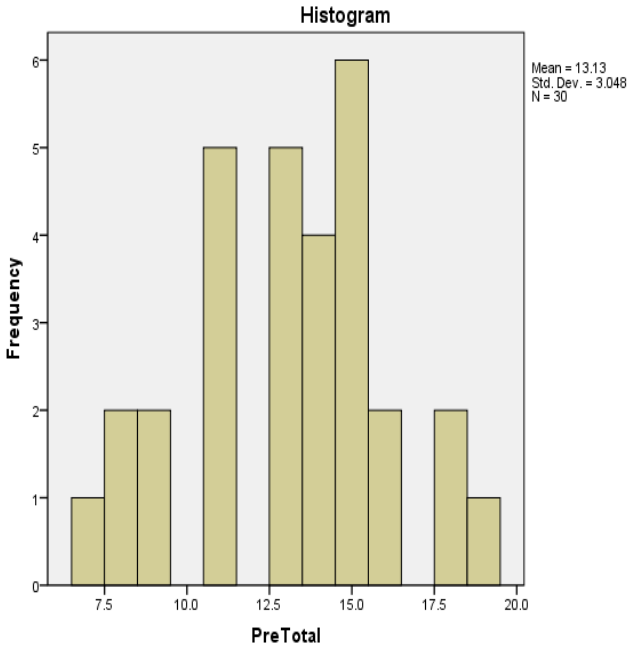
		PostEmpQ1	PostEmpQ2	PostEmpQ3	PostTotal
N	Valid	30	30	30	30
	Missing	0	0	0	0
Minimum		0	0	0	8
Maximum		2	1	1	21

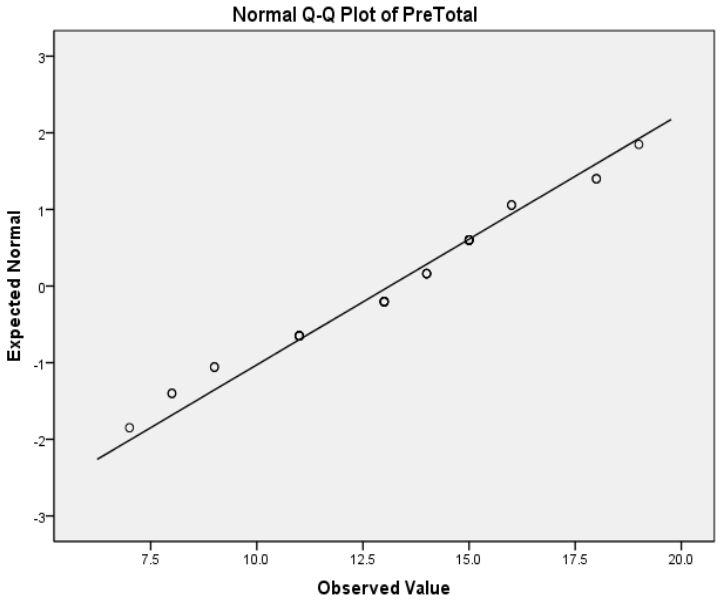
Replacing Missing Values

	Result Variable	N of Replaced Missing Values	Case Number of Non-Missing Values		N of Valid Cases	Creating Function
			First	Last		
1	PreFQ4_1	1	1	30	30	SMEAN(PreFQ4)
2	PostCrQ3_1	1	1	30	30	SMEAN(PostCrQ3)

APPENDIX S

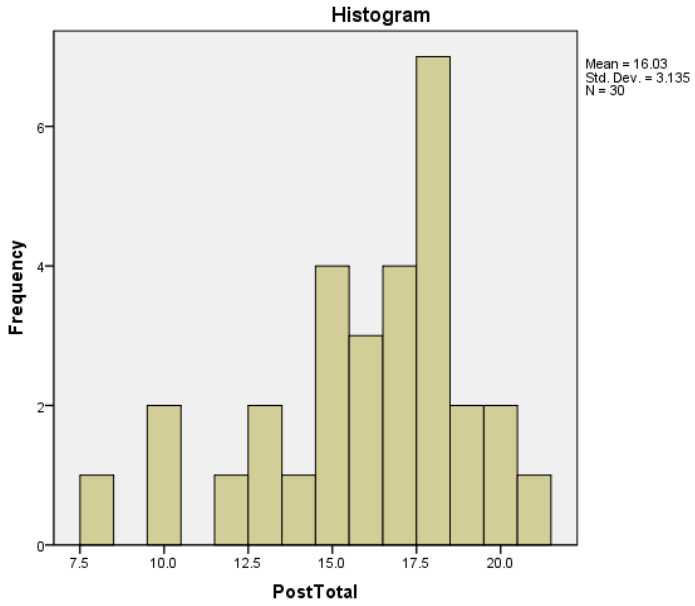
PRE-TOTAL HISTOGRAM AND Q-Q PLOT

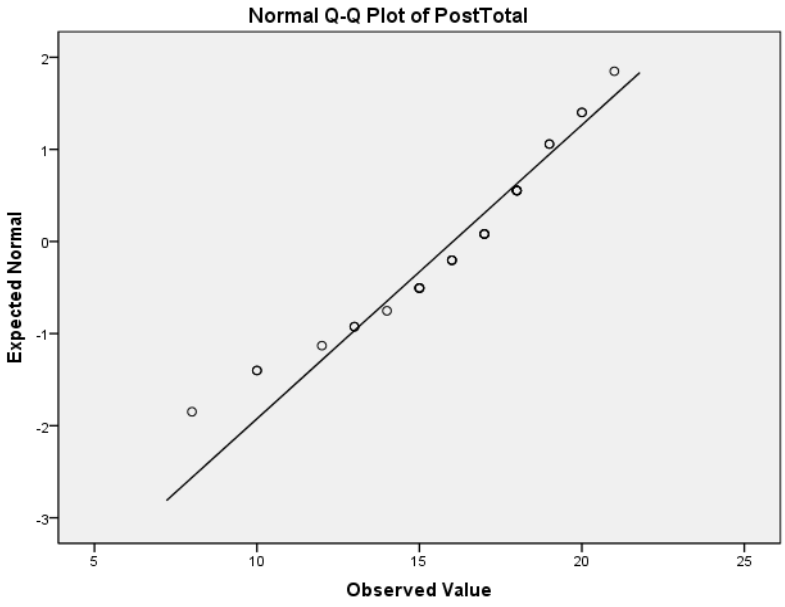




APPENDIX T

POST-TOTAL HISTOGRAM AND Q-Q PLOT





APPENDIX U

DESCRIPTIVE (SKEWNESS AND KURTOSIS)

	Statistic		Statistic	
			Value	Std. Error
PreFQ	Mean		4.77	.228
	95% Confidence	Lower Bound	4.30	
	Interval for Mean	Upper Bound	5.23	
	5% Trimmed Mean		4.70	
	Median		5.00	
	Variance		1.564	
	Std. Deviation		1.251	
	Minimum		3	
	Maximum		8	
	Range		5	
	Interquartile Range		1	
	Skewness		.701	.427
	Kurtosis		.316	.833
PreComQ	Mean		3.80	.242
	95% Confidence	Lower Bound	3.31	
	Interval for Mean	Upper Bound	4.29	

	5% Trimmed Mean		3.83	
	Median		4.00	
	Variance		1.752	
	Std. Deviation		1.324	
	Minimum		1	
	Maximum		6	
	Range		5	
	Interquartile Range		2	
	Skewness		-.467	.427
	Kurtosis		-.291	.833
PreCrQ	Mean		3.50	.310
	95% Confidence	Lower Bound	2.87	
	Interval for Mean	Upper Bound	4.13	
	5% Trimmed Mean		3.44	
	Median		3.00	
	Variance		2.879	
	Std. Deviation		1.697	
	Minimum		1	
	Maximum		7	
	Range		6	

	Interquartile Range		3	
	Skewness		.408	.427
	Kurtosis		-.391	.833
PostFQ	Mean		4.10	.175
	95% Confidence	Lower Bound	3.74	
	Interval for Mean	Upper Bound	4.46	
	5% Trimmed Mean		4.11	
	Median		4.00	
	Variance		.921	
	Std. Deviation		.960	
	Minimum		2	
	Maximum		6	
	Range		4	
	Interquartile Range		1	
	Skewness		-.211	.427
	Kurtosis		.436	.833
PostComQ	Mean		4.57	.294
	95% Confidence	Lower Bound	3.96	
	Interval for Mean	Upper Bound	5.17	
	5% Trimmed Mean		4.72	

	Median		5.00	
	Variance		2.599	
	Std. Deviation		1.612	
	Minimum		0	
	Maximum		6	
	Range		6	
	Interquartile Range		2	
	Skewness		-1.187	.427
	Kurtosis		1.120	.833
PostCrQ	Mean		5.97	.242
	95% Confidence	Lower Bound	5.47	
	Interval for Mean	Upper Bound	6.46	
	5% Trimmed Mean		6.00	
	Median		6.00	
	Variance		1.757	
	Std. Deviation		1.326	
	Minimum		3	
	Maximum		8	
	Range		5	
	Interquartile Range		2	

Skewness	-.316	.427
Kurtosis	-.371	.833

Note: Skewness is the measure of symmetry/Kurtosis is the measure of arching.

APPENDIX V

INTERNAL CONSISTENCY

Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.801	.809	8

Inter-Item Correlation Matrix

	PreFQ	PreComQ	PreCrQ	PostFQ	PostComQ	PostCrQ	PreTotal	PostTotal
PreFQ	1.000	.096	.122	.279	.102	.224	.569	.292
PreComQ	.096	1.000	.353	.071	.524	.468	.665	.517
PreCrQ	.122	.353	1.000	.180	.258	-.130	.760	.191
PostFQ	.279	.071	.180	1.000	.341	.111	.255	.595
PostComQ	.102	.524	.258	.341	1.000	.300	.391	.808
PostCrQ	.224	.468	-.130	.111	.300	1.000	.223	.664
PreTotal	.569	.665	.760	.255	.391	.223	1.000	.454
PostTotal	.292	.517	.191	.595	.808	.664	.454	1.000

Note: Inter-items are positively correlated with the majority of items.

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
PreFQ	51.10	91.334	389	.875	.796
PreComQ	52.07	84.823	.640	.890	.770
PreCrQ	52.37	85.895	.426	.908	.790
PostFQ	51.77	93.426	.423	.793	.796
PostComQ	51.30	81.183	.634	.916	.764
PostCrQ	49.90	89.748	.425	.892	.792
PreTotal	42.73	59.513	.710	.970	.749
PostTotal	39.83	57.799	.725	.969	.748

Note: Correlated item-Total correlation of that item with the total score of the scale.